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Implementing the National Inventory Management Strategy: a case study on DLA's National Inventory Management Strategy (NIMS)

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MBA PROFESSIONAL REPORT

IMPLEMENTING THE NATIONAL INVENTORY MANAGEMENT STRATEGY: A CASE STUDY ON DLA'S NATIONAL INVENTORY MANAGEMENT STRATEGY (NIMS)

By: **Francis S. Diaz,**
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December 2006

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13. ABSTRACT ***(maximum 200 words)***

Since 1990, the Government Accountability Office (GAO) audits have assessed supply chain management as a high-risk area within the Department of Defense (DoD). In response to these findings, the Defense Logistics Agency (DLA) developed the National Inventory Management Strategy (NIMS) initiative. This initiative combines the consumable repair inventories of DLA (wholesale level) and each armed service (retail level) into a single national inventory. The United States Navy and DLA established test sites at Naval Air Station Ingleside, Naval Air Station Whidbey Island, and Marine Corps Air Station Miramar to demonstrate its benefits and measure its performance. The aim of this report is to analyze NIMS preliminary performance metrics in terms of effectiveness and its impact on supply chain management within the Navy and DLA.

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ABSTRACT

Since 1990, the Government Accountability Office (GAO) audits have assessed supply chain management as a high-risk area within the Department of Defense (DoD). In response to these findings, the Defense Logistics Agency (DLA) developed the National Inventory Management Strategy (NIMS) initiative. This initiative combines the consumable repair inventories of DLA (wholesale level) and each armed service (retail level) into a single national inventory. The United States Navy and DLA established test sites at Naval Air Station Ingleside, Naval Air Station Whidbey Island, and Marine Corps Air Station Miramar to demonstrate its benefits and measure its performance. The aim of this report is to analyze NIMS preliminary performance metrics in terms of effectiveness and its impact on supply chain management within the Navy and DLA.

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TABLE OF CONTENTS

LIST OF FIGURES

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LIST OF TABLES

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I. INTRODUCTION

A. BACKGROUND

> Why is effective supply chain management important for DoD? There are two primary reasons. First, supply support to the warfighter affects readiness and military operations. In fact, the supply chain can be the critical link in determining whether our front-line military forces win or lose on the battlefield. Second, given the high demand for goods and services to support ongoing U.S. military operations, the investment of resources in supply chain is substantial.[1]

Since 1990, the Government Accountability Office (GAO) audits have assessed supply chain management as a high-risk area within the Department of Defense (DoD).[2] It reports problems such as:

- Lack of Joint Long Term Supply Chain Management Strategy
- Lack of Total Asset Visibility
- Critical Parts Shortages
- High Backorder Rates
- Inaccurate Inventory Data
- Inefficient Legacy Management Systems

In response to these findings, the Defense Logistics Agency (DLA) developed the Strategic Management System.[3] This system aims at transforming logistics operations within DoD. It identifies 18 strategic initiatives that aim at mitigating shortages of spare parts. One of these initiatives is the National Inventory Management Strategy that seeks

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[1] GAO Report, GAO-06-983T, "DOD's High Risk Areas: Challenges Remain to Achieving and Demonstrating Progress in Supply Chain Management", Statement by Williams M Solis, Director Defense Capabilities Management July 2006

[2] Ibid

[3] GAO Report, GAO-03-709, "Defense Inventory: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts", August. 2003

to extend DLA's supply chain management of consumable repair items beyond the wholesale level to provide supply support directly to the point of consumption.[4]

DLA's intends to use NIMS to combine consumable repair inventories of DLA (wholesale level) and each armed service (retail level) into a single national inventory. The combining of inventories allows DLA to create a uniform managed system that allows the pre-positioning of supplies according to regional usage and customer input. As a result, there is a reduction in customer wait time and an increase of parts availability, which contributes to the supply readiness of the military services.

> DoD recognized the need to improve supply performance in its August 2001 Defense Planning Guidance which directed a review of inventory management practices and stockage levels during the fiscal year 2003 program/budget review. The initial results of this study were included in the fiscal year 2002 Program Budget Decision 422, which recommended the department further study inventory management including developing a plan to streamline inventory management practices and improve supply chain management. More specifically, it suggested the department address the effect of inventory levels on weapons systems readiness.[5]

In 2001, under the guidance of Program Budget Decision (PBD) 422 the armed services developed plans to reduce their retail consumable inventories by transferring the ownership and management of consumable repair items to DLA to implement NIMS. DLA and the United Sates Navy initially established three test sites: Naval Air Station Ingleside, Naval Air Station Whidbey Island, and Marine Corps Air Station Miramar to measure the effectiveness of NIMS on supply chain management of consumable parts.

B. OBJECTIVE

The objective of this research is to determine how effective NIMS has been in improving supply chain management within the Navy test sites. To reach this objective,

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[4] GAO Report, GAO-03-709, "Defense Inventory: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts", August. 2003

[5] GAO Report, GAO-03-707, "Defense Inventory: The Department Needs a Focused Effort to Overcome Critical Spare Parts Shortages", June 2003

the research will analyze supply chain management process within DLA and conduct an evaluation of preliminary NIMS performance data.

Primary research question:

- How effective has, the implementation of the National Inventory Management Strategy been in improving supply chain management within Defense Logistics Agency?

Supporting questions:

- What were the factors that created a need to transform inventory management practices within DoD?
- How does the supply chain process work within DoD?
- What is the purpose of DLA's National Inventory Management Strategy?
- What impact has NIMS had on DLA's supply chain management?

C. SCOPE OF REPORT

The scope of this report is based on government related data concerning supply chain management and the analysis of preliminary data obtained from NIMS test sites. The aim of the report is to analyze NIMS results in terms of effectiveness, efficiency and its impact on supply chain management within the Navy and DLA. The report is divided into to two parts. Part one provides an historical background of inventory management within DLA and an overview of the NIMS initiative. Part two of the report presents the analysis and recommendations.

D. METHODOLOGY

Various research methods were used to determine how effective NIMS has been in the improvement of supply chain management within DLA and the U.S. Navy. We acquired and analyzed data from the following sources:

Test Site Metrics

Preliminary metrics data from January 2006 thru September 2006 were obtained from the following NIMS test sites:

Naval Air Station Ingleside, Texas

Naval Air Station Whidbey Island, Washington

Marine Corps Air Station Miramar, California

Interviews with Officials

This information was obtained from telephonic interviews, e-mail correspondence, and limited site visits to the following organizations:

Defense Logistics Agency HQ, Retail Integration Division, Virginia

DLA Office of Operations Research and Resource Analysis (DORRA), Virginia

Department of Navy: Aviation Support Unit, MCAS Miramar, California

Government Documents

Various sources of government documents were utilized to gather background information. Key documents included House National Security Committee Testimony, Congressional Research Service (CRS) reports to U.S. Congress, and memorandums to the Deputy Under Secretary of Defense Logistics and Material Readiness. Additionally, we relied on Government Accountability Office (GAO) reports for information about ongoing supply chain processes, and articles concerning current supply management issues.

E. ORGANIZATION OF REPORT

Following this introduction, the remainder of this report is organized in the following manner: Chapter II describes the historical background of supply chain management within DoD and provides a brief history of DLA. Chapter III describes the supply chain management process within DLA and the United States Navy. Chapter IV

describes the NIMS concept. Chapter V describes and analyzes the preliminary data from the three NIMS test sites. Chapter VI presents observations and recommendations.

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II. THE HISTORY OF DEFENSE LOGISTICS AGENCY (DLA)

In January of 2001, the Bush Administration identified "transformation" as a major goal for the Department of Defense (DoD).[6] Transformation within DoD was defined "as a large-scale, discontinuous, and possibly disruptive change in military weapons, concepts of operations and organization."[7] According to Vice Admiral Keith W. Lippert, DLA Director, transforming logistics is a continual process and not an end state.[8] We are leaving behind our legacy business model and organizational structures and transforming to become:

1. A robust customer-focused agency with world class military service and warfighter partnering capabilities

2. A manager and integrator of the supply chains essential to military readiness with world class commercial supplier partnering capabilities

3. A single, fully integrated enterprise

Since the inception of the DLA, it has continuously strived to improve supply support for the American Warfighter. Despite its achievements, the agency believes it must continue to undergo transformation in order to continue to meet the demands and improve support. The purpose of this chapter is to provide an historical background on the transformation processes of integrated supply management within DoD.

A. EARLY YEARS (CONSOLIDATION)

During World War II, the Army and Navy maintained separate supply inventories, storage facilities, and transportation services. As well as separate procurement systems for repair parts, fuel, medical supplies, clothing, and other

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6 CRS Report for Congress RL32238: "Defense Transformation: Background and Oversight Issues for Congress", Ronald O'Rourke, February 17, 2006

7 Ibid

8 "Acquisition Community Connection: DLA Transformation Roadmap (2006)", November 2005 https://acc.dau.mil/CommunityBrowser.aspx?id=32166 (Last accessed September 2006)

consumable commodities. By the end of World War II, the Army managed seven supply systems and the Navy managed eighteen. Some people believed that having too many supply systems led to inefficiencies within DoD. The National Security Act of 1947 prompted new efforts to eliminate duplication of inventories and overlapping supply systems. As a result, the Munitions Board was created in order to reorganize the major supply systems into a joint procurement agency. By 1949, the Commission on the Organization of the Executive Branch of the Government, known as the Hoover Commission, authorized the Secretary of Defense to create a single integrated supply agency.[9]

In 1952, Congress was not resolved with the efforts put forth by the Munitions Board and created the Defense Supply Management Agency (DSMA), but by 1953 the Eisenhower Reorganization Plan Number 6 dissolved the DSMA and transferred the responsibility of transformation to the Assistant Secretary of Defense for Supply and Logistics.[10] Under the direction of the Assistant Secretary, a joint Support Center consisting of the Army, Navy, and Air Force supply and quartermaster personnel was established to control the identification of supply items and the management of services. This marked the beginning of military services procuring and managing items in an integrated manner.[11]

During 1955, a second Hoover Commission recommended that common military supply items and logistics support be combined by category and each category be centrally managed by a civilian agency.[12] The commission felt this approach would reduce waste and inefficiencies within the military services. On the other hand, the military services feared that that such an agency would be less responsive to military

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9 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

10 "U.S. Code Title 5 Appendix", May 2002, www.access.gpo.gov/uscode/title5a/5a_4_54_1_.html (Last accessed November 2006)

11 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

12 Ibid

requirements and jeopardize the success of military operations.[13] Following the guidance of the commission recommendations, the Assistant Secretary of Defense for Supply and Logistics approved a defense directive in November 1955 that appointed each of the three service secretaries as a single manager for a selected group of commodities.[14] Under this directive, the Army managed all food and clothing items; Navy managed medical supplies, petroleum, and repair parts; and Air Force managed the electronic commodities.[15] This single concept will direct:

- Worldwide inventories; research; procurement; stock fund operation;
- Screening excesses; training; net requirement computation;
- Cataloging and standardization; inspection and quality control;
- Distribution and redistribution; storage and transportation; and
- Major maintenance and repair.[16]

This single manager concept reduced each services investment by centralizing wholesale inventories. This single manager concept was a tremendous success because over a six-year period, the single manager agencies reduced their item assignments by about 9,000, or 20 percent, and their inventories by about $800 million, or 30 percent.[17] This proved that integrated supply management was the solution DoD required.

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13 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

14 "Special Studies from Root to McNamara Army Organization and Administration", Hewes, James, E., September 1973 www.army.mil/cmh/books/root/chapter7.htm (Last accessed October 2006)

15 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed October 2006)

16 "Industrial College of the Armed Forces: Single Manager Plan", November 1955 www.ndu.edu/library/ic3/L56-063.pdf (Last accessed September 2006)

17 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

B. PROJECT 100 AND DEFENSE SUPPLY AGENCY

Secretary of Defense, Robert S. McNamara realized that the single manager concept was successful, but it failed to implement the procedures set forth by the second Hoover Commission.[18] In 1961, McNamara ordered the "Project 100" inquiry. The objective of the inquiry was to examine the following issues:

1. Should DoD continue the existing single manager system under the three service secretaries;

2. Should it be consolidated under one service secretary; or

3. Should the Secretary of Defense assume the responsibility of management?

The inquiry concluded that the existing system of multiple single managers created inefficiencies and redundancy in DoD supply chain management.[19] Secretary McNamara was convinced that the problem required some kind of an organization arrangement to "manage the managers."[20] However, the report concluded that consolidation under one service secretary would be impractical because of service biases for their own programs.

The recommended solution was to establish a common supply and service activity that would manage wholesale distribution, while allowing the individual services to maintain individual retail distribution supply system. In January of 1962, the Defense Supply Agency (DSA) was established as a common supply and service agency.[21] DSA became the wholesale level manager of consumable supply items for the services, assuming the responsibility of wholesale inventory and distribution support. DSA (by 1977 DSA was renamed Defense Logistics Agency) streamlined and consolidated depot

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18 "Industrial College of the Armed Forces: Single Manager Plan", November 1955 www.ndu.edu/library/ic3/L56-063.pdf (Last accessed September 2006)

19 "Industrial College of the Armed Forces: Single Manager Plan", November 1955 www.ndu.edu/library/ic3/L56-063.pdf (Last accessed September 2006).

20 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

21 "Special Studies from Root to McNamara Army Organization and Administration", Hewes, James, E.., September 1973 www.army.mil/cmh/books/root/chapter8.htm (Last accessed October 2006)

operations to provide better supply and logistics support to the services. In October 1986, the Goldwaters-Nichols Reorganization Act established DLA as a combat support agency responsible for the operational requirements needed to enhance the military services material readiness, to provide for sustainability, and to determine the most effective and economical way of supporting its customer.[22] In July 1989, Secretary of Defense Richard Cheney's Defense Management Review report emphasized improving management efficiencies in DoD by "cutting excess infrastructure, eliminating redundant functions, and initiating common business practices."[23]

C. REENGINEERING OF DLA BUSINESS PROCESSES

As of 2006, DLA manages over 5.2 million line items in inventory worth $94.1 billion and has estimated sales and services of $35.5 billion.[24] Aggressive transformation initiatives have streamlined the organizational structure by consolidating numerous Inventory Control Points and Distributions Centers into a single integrated enterprise.[25] Despite these implementations and achievements, DLA recognizes that transformation is a continues process which requires innovative ideas to continue to improve DoD readiness.

In 2006, DLA published their "Transformation Roadmap" which provided an outline of their four strategic goals and 13 key initiatives to continue the on-going transformation of logistics and supply support. One of the key initiatives is the National Inventory Management Strategy, which supports DLA's goals of developing and institutionalizing the internal processes required to deliver value added logistics solutions to the Warfighter and manage DLA resources for customer value. Since its inception in January 1962, DLA has standardized, procured, managed, and distributed DoD

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22 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

23 "Global Security: Defense Logistics Agency History", April 2005 www.globalsecurity.org/military/agency/dod/dla-history.htm (Last accessed September 2006)

24 "Defense Logistics Agency: Facts and Figures", October 2006 www.dla.mil/public_info/facts.asp (Last accessed September 2006)

25 "Acquisition Community Connection: DLA Transformation Roadmap 2006", November 2005 https://acc.dau.mil/CommunityBrowser.aspx?id=32166 (Last accessed September 2006)

consumable supply items to the warfighter. DLA also has gone through extensive reorganization in its efforts to eliminate redundant supply management practices and logistics services. This chapter provided the historical background of integrated supply management with DoD. The following chapter will provide a brief overview on the current supply inventory management concept used in DoD.

III. DEPARTMENT OF DEFENSE SUPPLY CHAIN MANAGEMENT

The Department of Defense (DoD) has been working for decades on fixing its inefficiencies of inventory management since the inception of creating a single integrated supply agency. Some of these inventory management problems include outdated and inefficient inventory management practices, inadequate inventory oversight, weak financial accountability, and overstated requirements. According to the United States Government Accountability Office (GAO) testimony before Congress on March 1997, GAO identified DoD's inventory management as one of their 25 high-risk areas in the federal government because of its vulnerabilities to waste, fraud, and abuse.[26]

> In the short term, DoD must continue to stress the efficient operations of its existing logistics systems. This includes disposing of unneeded inventory, implementing efficient and effective inventory management practices, training personnel and rewarding the right behavior, improving data accuracy, and enforcing existing policies to minimize the acquisition of unneeded inventory. In the long term, DoD must establish goals, objectives, and milestones for changing its culture and adopting new management tools and practices. Key to changing DoD's management culture will be an aggressive approach using best practices from the private sector.[27]

DoD's goal is to use best business practices from the private sector. Just like the private sector, DoD faces the challenge of improving its services while lowering costs on a day to day basis. DoD needs to adopt innovative business practices to meet or exceed customer needs while continuing to exercise a fiscal budget that keeps getting tighter. This chapter will provide a brief overview of the current supply inventory management concept used in DoD. The focus will be on the two levels of inventory and the supply systems within DoD, specifically Defense Logistics Agency and the United States Navy.

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[26] GAO Report, GAO/T-NSIAD-97-109: "Defense Inventory Management: Problems, Progress, and Additional Actions Needed, March 1997

[27] Ibid

A. WHOLESALE AND RETAIL CONCEPT

DoD operates its supply system based on the wholesale (DLA) and retail (military services) levels of inventory. The wholesale and retail levels are made up of secondary inventories that include consumable supplies, such as parts, clothing, medical, subsistence, and end items that are discarded after use rather than repaired. The first level of inventory is the wholesale level and is responsible for the procurement of items from manufacturers, commercial or wholesale suppliers and vendors. These items are maintained in distribution warehouses or Inventory Control Points (ICPs). Some critics feel this has resulted in holding excessive inventory. The large inventory of consumable items reflects DoD's management practices of relying on large stock levels to readily meet its customers needs.[28] For example, DoD continue to store redundant levels of clothing and textile inventories at both wholesale and retail locations and to hold such inventories for longer periods of time than the private sector firms.[29] The culture in DoD was that it was better to over-stock items than to manage with just the amount of stock needed. DoD stores its inventory at three or more levels to provide items to end users when needed. Figure 3.1 shows DoD's multilayered inventory system.[30] The retail level and customers purchase consumable items from the wholesale level and store the inventories in nearby base or station warehouses, central storage, and unit locations.

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[28] GAO Report, GAO/NSIAD-95-142: "Inventory Management: DoD Can Build on Progress in Using Best Practices to Achieve Substantial Savings", August 1995

[29] GAO Report, GAO/NSIAD-94-64: "Commercial Practices: Leading-Edge Practices Can Help DoD Better Manage Clothing and Textile Stocks, April 1994

[30] GAO Report, GAO/NSIAD-95-142: "Inventory Management: DoD Can Build on Progress in Using Best Practices to Achieve Substantial Savings", August 1995

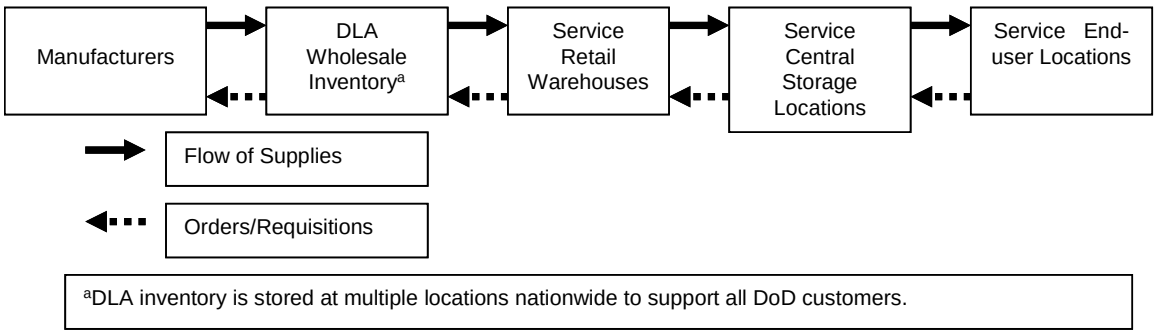

Figure 3.1: Multilayered Inventory System used by DoD.[31]

B. DEPARTMENT OF DEFENSE SUPPLY SYSTEMS

The DoD supply chain process encompasses those government and private-sector organizations, processes, and systems that individually or collectively play a role in planning for, acquiring, maintaining, or delivering material resources for military or other operations conducted in support of the United States national defense interest.[32] The diagram below shows the supply chain management process from point of origin to consumption.

31 GAO Report, GAO/NSIAD-95-142: "Inventory Management: DoD Can Build on Progress in Using Best Practices to Achieve Substantial Savings", August 1995

32 Acquisition Community Connection: DLA Transformation Roadmap (2006), November 2005 www.acc.dau.mil (Last accessed September 2006)

Supply Chain Management

Figure 3.2: Supply Chain Management.[33]

1. Defense Logistics Agency

The Defense Logistics Agency (DLA) is comprised of a Headquarters component, five Defense Supply Centers (DSC), and 26 Defense Distribution Centers (DDC).[34] DLA's headquarters is located at Fort Belvoir, Virginia and is DoD's largest combat support agency, providing worldwide logistics support in both peacetime and wartime to the military services as well as several civilian agencies and foreign countries.[35] It also provides logistics support to other DoD Components and certain Federal agencies, foreign governments, international organizations, and others as authorized. DLA employs a workforce of more than 20,000 military and civilian personnel and supports the procurement, management, storage, and distribution of 5.2 million items for U.S. military customers, other federal agencies, and allied forces.[36] One of DLA's missions is to manage 95 percent of the military services' supply needs, such as repair parts, food, fuel, medical, clothing and textile, and construction materials.[37] In Fiscal Year 2006,

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33 Acquisition Community Connection web site, www.acc.dau.mil (Last accessed November 2006)

34 DLA Logistics Operations, November 2006 www.supply.dla.mil/DLA_centers.asp#Supply (Last accessed November 2006)

35 "Defense Logistics Agency: Facts and Figures", October 2006 www.dla.mil/public_info/facts.asp (Last accessed September 2006)

36 DLA Logistics Operations website, www.supply.dla.mil (Last accessed November 2006)

37 Defense Logistics Agency: Business Opportunities, November 2006 www.dla.mil/bussOppsMain.asp (Last accessed November 2006)

DLA's sales and services totaled $35.5 billion and maintain an inventory value of $94.1 billion.[38] DLA is organized as a Defense Working Capital Fund activity. This means that DLA does not receive annual appropriations from Congress rather, it relies on lateral transfers of budget authority, primarily from appropriated fund customers.

2. Defense Supply Centers

The Defense Supply Centers (DSCs) act as DLA's Inventory Control Points whose responsibility is to manage DoD's materials and supplies.[39] DSCs consolidates all military services requirements and procures materials in optimal quantities needed to meet customers' needs. The procured items are then delivered directly from a commercial vendor. Residual stock that remains is stored at and distributed from the distribution centers worldwide. Each of the five DSC locations store different commodities. For example, the supply center in Richmond, Virginia is the primary source of supply for aviation supply.[40] The five DSCs are located in Columbus, Ohio; Richmond, Virginia; Philadelphia and Mechanicsburg, Pennsylvania; and the Defense Energy Support Center headquartered at Fort Belvoir, Virginia.

3. Defense Distribution Centers

The Defense Distribution Centers (DDCs) are located throughout the United States and around the world.[41] Its headquarters is in New Cumberland, Pennsylvania. DDCs mission is to provide the full range of distribution services and information enabling a seamless, tailored, worldwide DoD distribution network that delivers effective, efficient and innovative support to combatant commands, military services, and other agencies during peace and war.[42] The DDCs operational responsibilities include receipt, storage, issue, packing, preservation, worldwide transportation, in-transit

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38 "Defense Logistics Agency: Facts and Figures", October 2006 www.dla.mil/public_info/facts.asp (Last accessed September 2006)

39 DLA Logistics Operations, November 2006 www.supply.dla.mil/DLA_centers.asp#Supply (Last accessed November 2006)

40 Defense Supply Center Richmond website www.dscr.dla.mil (Last accessed November 2006)

41 "DLA Defense Distribution Center: Functions of a Distribution Center", www.ddc.dla.mil/Sites//functions.asp (Last accessed November 2006)

42 DLA Defense Distribution Center: Strategic, November 2006 www.ddc.dla.mil/aboutddc/lrpv.htm (Last accessed November 2006)

visibility and redirecting en-route, when required, of all items placed under its accountability by DLA and the military services. The 26 DDCs store more than 3.9 million line items and process more than 26 million transactions annually.[43] As DLA's lead centers' for distribution, the DDCs are responsible for commodities such as clothing, textiles, electronics, industrial, construction supplies, subsistence, medical material, and principle end items.

Figure 3.3: Defense Distribution Centers NDTA DDSP[44]

C. UNITED STATES NAVY

The Navy supply system is integrated with the Defense Logistics Agency (DLA) supply system.[45] The following sections describe the operation of the integrated Navy

43 DLA Defense Distribution Center website www.ddc.dla.mil/aboutddc/lrpi.htm (Last accessed November 2006)

44 Defense Distribution Center website, www.ndtahq.com/download/NDTA_DDSP_Briefing.pdf (Last accessed November 2006)

supply system, in providing material required by the Operating Forces. The following overview of the Navy's supply systems shows the relationship of the various elements.

1. Naval Supply Systems Command

The Naval Supply Systems Command (NAVSUP) headquarters is located in Mechanicsburg, Pennsylvania. NAVSUP employs more than 24,000 military and civilian personnel worldwide.[46] Its primary responsibility is to provide supply support to Navy, Marine Corps, Joint and Allied Forces worldwide.[47] It sets the policies, procedures, and integrated business systems that govern the Navy supply system. NAVSUP coordinates with DLA to determine its consumable inventory allowances and storage warehouse locations in order to provide the maximum level of operational readiness and efficient stock levels. NAVSUP is responsible for setting optimum levels of inventory to determine how many consumable line items the customers should keep on stock to meet mission readiness. The two major activities under NAVSUP are the Naval Inventory Control Point's (NAVICP) in Mechanicsburg and Philadelphia, Pennsylvania along with seven Fleet and Industrial Supply Centers (FISCs). The NAVICP and FISC store wholesale and retail level consumable items.

2. Naval Inventory Control Point

The Naval Inventory Control Points (NAVICPs) primary mission is to procure, manage, and supply repair parts for naval aircraft, submarines, and ships worldwide.[48] Their mission is carried out by a single command organization operating as a tenant activity of the Naval Support Activities in Mechanicsburg and Philadelphia, Pennsylvania. The responsibilities of NAVICPs are:

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45 Integrated Publishing: Supply Organization website www.tpub.com/content/administration/14242/css/14242_23.htm (Last accessed November 2006)

46 Naval Supply Systems Command web site, www.navsup.navy.mil/portal/page?_pageid=477,261535&_dad=p5star&_schema=P5STAR (Last accessed November 2006)

47 Naval Supply System Command Corporate Strategic Plan: NAVSUP Mission website, www.navsup.navy.mil/pls/p5star/docs/PAGE/NAVSUP/OURTEAM/NAVSUP%20CORPORATE%20STRATEGIC%20PLAN.PDF (Last accessed November 2006)

48 "Global Security: Naval Supply Systems Command website, www.globalsecurity.org/military/agency/navy/navsup.htm (Last accessed November 2006)

- Position material at various stock points
- Retain inventory control of material through an extensive stock reporting system
- Provide technical assistance and cataloging services to the supply system (and to its customers).[49]

NAVICP is responsible for more that 400,000 line items with an inventory of $15.5 billion and annual sales of $3.2 billion.[50]

3. Fleet and Industrial Supply Centers

The Fleet and Industrial Supply Centers (FISCs) provide a variety of supply support and services to Navy, Marine Corps and other joint and allied military customers in their respective regions.[51] The FISCs are responsible for determining inventory levels, procuring, receiving, storing, issuing, shipping, or delivering material to its customers. The FISCs are the primary contact points of the operating force for material support. There are seven regional FISC locations worldwide as depicted in the diagram

[49] Integrated Publishing: Supply Organization website, www.tpub.com/content/administration/14242/css/14242_23.htm (Last accessed November 2006)

[50] Global Security: Naval Supply Systems Command website, www.globalsecurity.org/military/agency/navy/navsup.htm (Last accessed November 2006)

[51] Ibid.

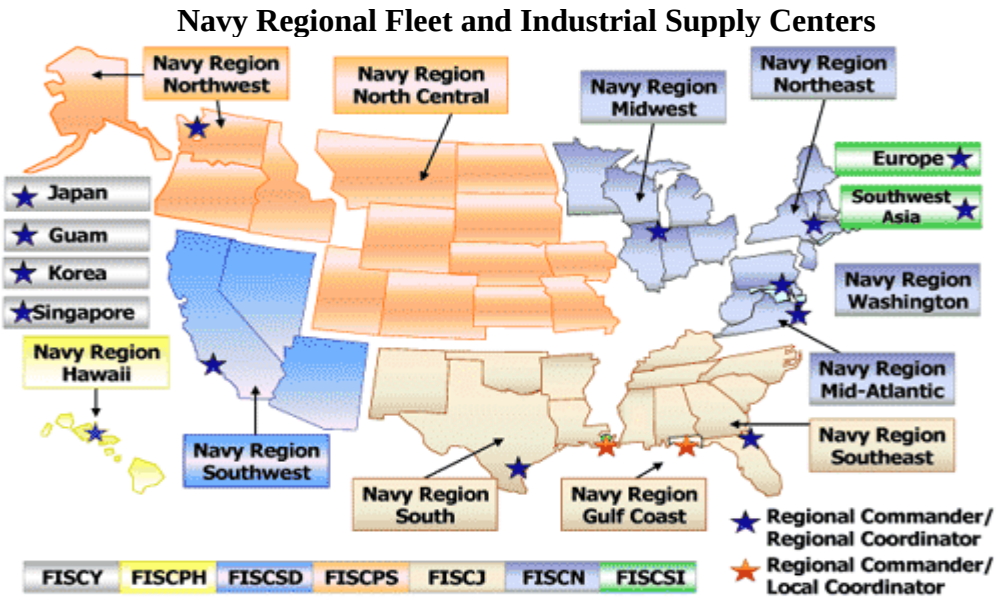

Figure 3.4: Navy Regional Fleet and Industrial Supply Centers [52]

This chapter described the current supply inventory management concept used in DoD. The next chapter will provide an overview of DLA's National Inventory Management Strategy initiative.

[52] Naval Supply Systems Command website, www.navsup.navy.mil/portal/page?_pageid=477,264024,477_264041&_dad=p5star&_schema=P5STAR (Last accessed November 2006)

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IV. NATIONAL INVENTORY MANAGEMENT STRATEGY

This is not the first time DLA has used a consolidated supply management strategy; this approach has been utilized successfully by DLA in the management of fuel, medical, and subsistence supplies. Unlike the aforementioned commodities, the management of repair parts presents a greater challenge due to the variations of consumable repair parts and the difficulty of managing separate vendors. This chapter provides an overview of the National Inventory Management Strategy (NIMS) purpose, concept of operation, benefits, and possible challenges.

A. NATIONAL INVENTORY MANAGEMENT STRATEGY (NIMS)

Under the guidance set forth by Program Budget Decision 422, services are required to develop plans to reduce consumable inventories by transferring them to DLA. The result would yield an inventory management strategy that would streamline the management process of repair parts. Once implemented, it would create a supply system that would be managed from a single owner-manager perspective.

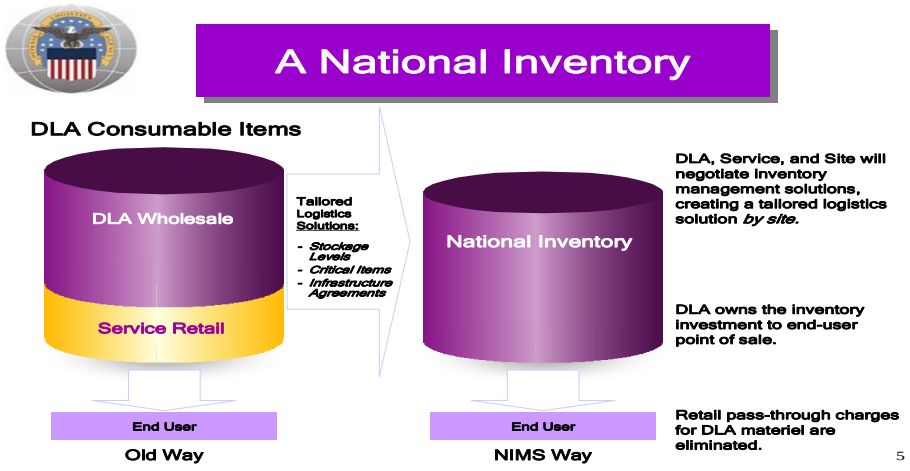

Figure 4.1: NIMS Strategy[53]

53 DLA Transformation Roadmap, FY 2006 https://acc.dau.mil/CommunityBrowser.aspx?id=32166 (Last accessed November 2006)

1. Purpose and Objective

The purpose of NIMS is to allow the Defense Logistics Agency (DLA) to extend its supply chain management of repair parts from the wholesale level to the point of consumption. The initiative aims at combining consumable inventories from the wholesale level (DLA) and the retail level (Service-managed retail inventory level) into a single-owner management concept. The result would yield increase efficiency and productivity of the entire consumable supply chain.

The objective of NIMS is to manage consumable items from the point of acquisition to the point of consumption for the services. The result would be total asset visibility for all of the services, reduction in the layers of inventory management, improvement of demand forecast and stock efficiency, consolidation of inventory, and greater cross-leveling of supplies within the defense community. It would provide the flexibility to tailor logistics, supply support, and stock positioning throughout DoD.[54]

2. Concept of Operation

Prior to implementing NIMS, the ownership of inventory was transferred from the owning service to DLA. This process was done as transparently as possible to minimize disruption of the organization's existing supply chain process. Once NIMS is implemented, an inventory baseline is established based on the customer's historical supply demands. Under NIMS, the services will continue to use existing supply systems to track inventory management and retail infrastructures, allowing consumables to be maintained at forward positions. Although the inventories are maintained at retail locations, the services do not pay holding cost of inventory until organizational level units procure items. This allows DLA and the services to establish joint monitoring performance measures for example customer material availability.[55] NIMS was developed in four phases. As of November 2006, NIMS is in Phase III (Testing).

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[54] "DLA's New Inventory Management Strategy", Major General Hawthorne L. Proctor and Captain Aaron J. Cook, September 2002 www.almc.army.mil/alog/issues/SepOct02/MS823.htm (Last accessed September 2006)

[55] PR Newswire: "DLA Navy Pilot National Inventory Program at Whidbey Island", November 2005 www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/11-23-2005/0004222080&EDATE (Last accessed October 2006)

Phases of Development [56]

Phase I Concept Development: Develop the current process benchmarks.

- Map "as is" current processes
- Define baseline performance and measures
- Identify system linkages

Phase II Planning and Coordination: Study, analyze, and coordinate identification of best value options, obstacles and testing opportunities.

- Map "to-be" future processes
- Develop improved performance measures
- Brief NIMS to services and DLA teams
- Develop Customers Relationship Management (CRM) strategy
- Identify pilot sites

Phase III Testing: DLA and services test NIMS at field sites to demonstrate its benefits.

- Establish stockage policy, asset utilization, item transfer, and scope
- Measure pilot site performance against baseline
- Monitor and measure resource impacts, information technology linkages and cost savings

Phase IV NIMS Rollout: DLA and services implement and monitor rollout plan.

- Track site-specific and overall performance measures

56 "DLA's New Inventory Management Strategy", Major General Hawthorne L. Proctor and Captain Aaron J. Cook, September 2002 found at www.almc.army.mil/alog/issues/SepOct02/MS823.htm (Last accessed September 2006)

3. Benefits

Primary benefits of NIMS include single point of access for users and total visibility of consumable inventories by DLA and the services.[57] Single point access and total visibility allows DLA and the services to implement better inventory allocation and distribution based on the demands by the services. The benefits of NIMS for the services include higher levels of supply readiness, reduction in customer wait time, tailored logistics support, optimization of supply chain, ownership cost avoidance and the ability to better focus on their core competency. For DLA, the benefits include better resource allocation management, improvement in material availability; focus on core competencies, better ability to make sound decisions on how much material to buy and when to buy it, and reduction in redundant inventory.

4. Challenges

A number of challenges could interfere with DLA's long-term plan of NIMS implementation.[58] First, DoD lacks a joint long-term strategy in its efforts to integrate supply chain management throughout DoD. Second, integration of numerous legacy information systems to manage supply chain management within DoD. Finally, data accuracy and reliability issues hinder inventory management system integration.

a. Lack of Joint Long Term Strategy for Supply-Chain Management

> In response to Program Budget Decision 422, dated December 2001, each of the military services developed separate plans for implementing decision, which reflected a disparity in the extent to which they were willing to implement the department policy. While this document called for military services to eliminate duplicative retail supply operations by returning management and ownership of DLA managed items being held by military services to DLA, the services' implementation plans each interpreted the requirements differently. For Example, the Navy plan called for small number of pilot sites where DLA would take over the ownership of the DLA managed items being stored at

[57] GAO Report, GAO-03-709: "Defense Inventory: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts", August 2003

[58] GAO Report, GAO-05-15: "Defense Inventory: Improvements Needed in DOD's Implementation of its Long-Term Strategy for Total Asset Visibility of its Inventory", December 2004

the Navy supply activities. The Air Force, on the other hand, did not participate in any of the pilot projects, and planned only to eliminate co-located inventories items at the Air Logistics Centers.[59]

b. Information Systems Integration

DoD has not achieved the necessary integration or interoperability of its inventory (business) systems to support Total Asset Visibility. TAV cannot be achieved unless these multiple business systems provide users such as combatant commanders, operating units and inventory managers with accurate data on the quantity, location, condition, and movement of inventory. As part of its ongoing business systems modernization efforts DoD is creating a repository of the department's existing business systems. As of April 2003, this repository contained 210 inventory related information systems within the logistics domain. As of May 2004, these systems are not integrated.[60]

c. Data Accuracy and Reliability Issues

Military service audit agencies and the DoD Inspector General identified various types of inaccurate inventory data in the military services' information systems. Since fiscal year 2002, these inaccuracies included more than $200 million of excess or unrecorded inventory that was not visible to item managers as well as significant misstatements in the reported inventory balances. Since these unrecorded inventories were not visible to item managers, they could not be used to satisfy current operating requirements and represent an unnecessary cost if additional inventory was purchased that was not needed. To illustrate this point, the Air Force Audit Agency identified a $3.3 million overstatement in the procurement and repair requirement for three aircraft systems that resulted from the lack of visibility over $10.8 million worth of inventory for these three systems.[61]

This chapter provided an overview of NIMS purpose, concept of operation, benefits, and possible challenges. The next chapter will provide an analysis of preliminary data from the Naval Air Station test sites Ingleside, Whidbey Island, and Miramar.

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[59] GAO Report, GAO-05-15: "Defense Inventory: Improvements Needed in DOD's Implementation of its Long-Term Strategy for Total Asset Visibility of its Inventory", December 2004

[60] Ibid

[61] GAO Report, GAO-05-15: "Defense Inventory: Improvements Needed in DOD's Implementation of its Long-Term Strategy for Total Asset Visibility of its Inventory", December 2004

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V. EFFECTIVENESS OF NIMS

As discussed in the previous chapters, DLA has been plagued with inventory management issues for decades. These inventory management issues were highlighted in a Government Accountability Office (GAO) report dated March 1997.[62] The main issues include; high customer wait times, duplicate inventories, obsolete/no demand inventory, and failure to meet the demands of the services. The GAO report stated, "Much of DOD's unneeded inventory was acquired because of outdated and inefficient inventory management practices."[63] Therefore, one of the initiatives that DLA created to correct these inefficiencies was NIMS. DLA identified several key goals to achieve the level of efficiency required to support the services. These goals as identified in previous chapters include:

- Establishing one national inventory
- Tailoring inventory to meet each service's requirements
- Reducing redundant inventory levels
- Lowering overall DOD inventory costs

This chapter will analyze the effectiveness of NIMS in achieving these goals at three Navy test sites: Naval Air Station (NAS) Ingleside, NAS Whidbey Island and Marine Corps Air Station (MCAS) Miramar. First, we will look at the implementation challenges at each of the NIMS sites, the definitions used within the metrics provided by the DLA Office of Operations Research and Resource Analysis (DORRA), and finally we will analyze the metrics from January 2006 through September 2006 to determine the following:

- Site effectiveness
- Measures to improve Customer Wait Time (CWT)
- Backorder rate at each site

62 Defense Inventory Management: Problems, Progress, and Additional Actions Needed (Testimony, 03/20/97, GAO/T-NSIAD-97-109)

63 Ibid

Navy aviation supply depots control all of these sites. The consumable inventories at each site were turned over to DLA for implementation to NIMS. The "trust and control factors…providing the responsiveness required to directly support readiness" is a service requirement that DLA must strive to achieve and maintain; which is their ability to effectively deliver the right part to support the readiness of their customers.[64] If the services are going to "give-up" ownership of their inventories, DLA must deliver the right part at the right time, and in a timely manner.

A. IMPLEMENTATION CHALLENGES OF NIMS[65]

Each of the NIMS sites posed unique challenges. NAS Ingleside implemented NIMS in May 2003; NAS Whidbey Island implemented NIMS in August 2005; and MCAS Miramar implemented NIMS in February 2006.[66]

1. Naval Air Station Ingleside

Naval Air Station Ingleside is located in Corpus Christi, Texas, and has surface combatant ships and aviation squadrons. The NIMS site onboard Ingleside provides supply support to the aviation squadrons. Naval Supply personnel operate the NIMS site, with inventory management support from DLA. DLA owns the inventory, but Navy personnel manage and issue the inventory.

The transition of Ingleside's retail inventory management programs were closely aligned with DLA's legacy Standard Automated Materiel Management System (SAMMS) and the new Business System Modernization (BSM) initiative. Since the systems were almost fully compatible, DLA and Ingleside were immediately able to shift to the NIMS strategy of inventory management. However, the BSM transformation did cause some inventory issues. DLA did not immediately replenish Ingleside's inventory to meet demand, causing a long-term shortage in local inventory. This will become

64 Business System Modernization Presentation given by Ms. Cathy Cutler, SES, Executive Director, Acquisition Technical and Supply Directorate, Defense Logistics Agency, 4 April 2006, Slide 34

65 Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

66 Business System Modernization Presentation given by Ms. Cathy Cutler, slide 35

apparent as we analyze the metrics. Overall, the transition was almost seamless at Ingleside. The challenges would soon surface, but more along the lines of Customer Wait Time, specifically related to inventory and transportation issues.

2. Naval Air Station Whidbey Island

Naval Air Station Whidbey Island is located in Oak Harbor, Washington. The main tenants are aviation squadrons. The NIMS site onboard Whidbey provides supply support to the aviation squadrons. Naval Supply personnel operate the NIMS site, with support from DLA. DLA owns the inventory, but Navy personnel manage and issue the inventory.

Whidbey Island's customer base is much larger than Ingleside, not to mention more complex because of the different types of customers it serves; for example, fixed-wing and helicopter squadrons, with multi-service applicable systems. Whidbey's information technology system did not match DLA's SAMMS or BSM. Therefore, communication issues hindered the initial implementation.

3. Marine Corps Air Station Miramar

Marine Corps Air Station Miramar is located in San Diego, California. Miramar's main tenants include aviation squadrons from the Marine Corps and the Navy. The NIMS site onboard Miramar provides supply support to all of the aviation squadrons. Naval Supply personnel, with support from DLA, operate the NIMS site. DLA owns the inventory and Navy personnel issue the inventory.

Miramar has been tasked with many transformational changes the past several years. Most recently, Miramar was tasked to undergo a complete shutdown and transfer of inventory under the Regional Inventory and Material Management (RIMM) streamline.[67] Therefore, the inventory level was not at a normal sustainable level. The initial reports that were generated reflect inconsistent data because of this major flaw. DLA is finally replenishing Miramar with an adequate inventory to support customers.

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[67] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

B. DEFINITION OF TERMS USED IN THE METRICS

Throughout the metrics provided by DLA, many terms are used that must be defined to ensure consistency of information interpretation. These terms, as taken from throughout the DLA website are:[68]

- Baseline: is the starting point or measurement within each metric, as established by the Navy.[69]
- Business Systems Modernization (BSM) - will bring DLA's procurement systems to a standard software solution exploiting all processes that support its supply chain.[70]
- Backorder (BO) DLA does not have the part in the system but a contract exists to procure the item.
- Customer Wait Time (CWT) is the average TPT for all site customer requisitions (includes both LDT and WDT).
- Defense Distribution Center San Diego (DDDC) is located at DLA 32nd Street at Naval Station San Diego.
- Defense Distribution Center San Joaquin (DDJC) is located at San Joaquin, CA.
- Defense Distribution Susquehanna PA (DDSP) has primary responsibility for all DLA customers east of the Mississippi River, in Europe, Southwest Asia, South America, the Caribbean, Canada, Africa, and Antarctica. Defense Distribution San Joaquin, CA, provides this same support to customers west of the Mississippi River, in Asia, the Pacific, and Australia.

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68 Defense Logistics Agency Website: http://www.dla.mil/. (Last Accessed November 2006)

69 Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

70 Defense Logistics Agency Website: http://www.dla.mil/j-4/cric/article3.asp. (Last Accessed on November 2006)

- Direct Vendor Delivery (DVD) is a material acquisition and distribution method that requires vendor delivery directly to the customer.
- DLA Office of Operations Research and Resource Analysis (DORRA)
- First Pass Time is defined as the time it takes for an item to be delivered to the customer if it is available at the local NIMS site.
- Goal Line: is what the Navy has established as the goal of the different measures of effectiveness.[71]
- Inventory Control Point (ICP) An organizational unit or activity within a DoD supply system that is assigned the primary responsibility for the material management of a group of items either for a particular service or for the DoD as a whole.
- Local Delay Time (LDT) is the average TPT for requisitions where stock was issued from the site.
- Local Issue (LOC ISS) refers to the site closest to the customer, such as Miramar, Ingleside, and Whidbey.
- Net Effectiveness (NET EF) is the site's rate of immediate issues for only those site customer requisitions against the forward stocked items.
- Other Issues (OTH ISS) are the number of issues from somewhere other than the DLA system of distribution.
- Regional Inventory and Material Management (RIMM) streamlines the flow of materials, providing the ability to get the job done with fewer resources, and an increased responsiveness to availability for the customer.

71 Per visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

- Strategic Distribution Platform (SDP) is the distribution center. These sites include San Joaquin, CA or the DLA center in San Diego at 32nd Street.
- Supply Availability (SUP AV) is the system-wide rate of immediate issue.
- Total Pipeline Time (TPT) is the elapsed time in days from the requisition date to receipt confirmation.
- Wholesale Delay Time (WDT) is the average TPT for requisitions where stock was issued from *other than* the site.
- Wholesale issue refers to items issued from DLA distribution centers, such as San Joaquin, CA.

C. SITE EFFECTIVENESS

One of the ways to measure and track the effectiveness of a site is to look at their ability to deliver the right parts to their customers in a "reasonable" amount of time, thereby supporting the customer's readiness. The following Net Effectiveness (Net Ef) slides for each one of our sites will show how each has done since the implementation of NIMS.

The Net Effectiveness graphs are complex and rich in the detail they offer. This is how to read them:

1. The left axis measures the number of supply requests generated at each site.
2. The bar chart bars indicate by month the number of requests and from which sites they are being filled, e.g. locally (Loc Iss) vs back order (BO), and depot level issue (SDP Iss) vs other issue (Oth Iss).
3. The straight red line across the top is the Navy's goal for net effectiveness, set at 85%. Note that Ingleside's goal and baseline are the both 82%.

4. The straight blue line represents each site's net effectiveness baseline, also set by Navy, which averages in the low 80 percentile, but different for each site.

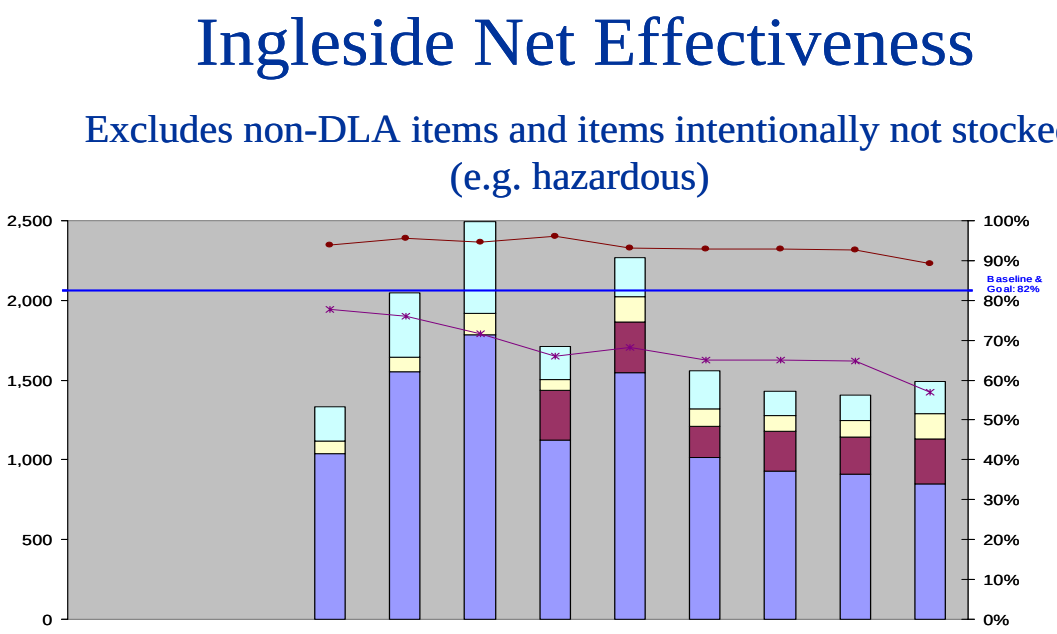
5. The right axis depicts the percentage of requisitions that were actually filled by the local DLA site (Net Ef).

6. The right axis also measures the "Supply Availability (Sup Av)", depicted by the red dotted line, of those requisitions within the DLA supply chain, regardless of issue point. For Whidbey Island this ranged from 95% to 98%. This measure differs for each site.

A major goal of NIMS is to have all requests from customers filled from the NIMS sites; indicating that DLA is meeting the needs of the Navy with the right part in a timely manner. The percentages on the right axis of the graph depict the percentage of requisitions that were actually filled by the NIMS site "Net Effectiveness (Net Ef)" which is depicted by the purple dotted line, and the "Supply Availability (Sup Av)", depicted by the red dotted line, of those requisitions within the DLA supply chain, regardless of issue point. Across the top of the graph, the red "Goal" line, which is overlapping the blue "Baseline" on the Ingleside slide, indicates where the Navy wants the NIMS site net effectiveness (Net Ef) to be given the high Sup Av and the new DLA strategy of having the right part at the right place for the customer. The blue "Baseline" indicates where Net Ef started for that particular site. [72]

[72] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

1. Naval Air Station Ingleside



	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
Oth iss				216	402	573	210	244	239	148	160	202
BO				82	88	135	67	156	112	100	104	159
SDP iss							311	319	194	251	233	282
Loc iss				1,037	1,555	1,784	1,125	1,547	1,014	929	909	850
Sup Av				94%	96%	95%	96%	93%	93%	93%	93%	89%
Net Ef				78%	76%	72%	66%	68%	65%	65%	65%	57%

Table 5.1: NAS Ingleside Net Effectiveness[73]

Ingleside's net effectiveness fell in September 2006 to 57%, about 25% below its goal of 82%. Ingleside's net effectiveness has steadily declined from January 2006 when it was 78%, only four percentage points below the goal. Our research disclosed reasons for this decline, which includes BSM transition challenges and DLA delay in replenishing Ingleside's inventory to the proper level. A close study of the graph and table above suggests that the fault might lie in the inventory mix held locally. This may be seen in the fact that backorders have almost doubled from 82 in January to 159 in September, while the number of locally issued parts declined from 1037 to 850. Just examining the months of August and September, Ingleside's net effectiveness fell from 65% to 57%, and the potential explaining factors would seem to be a decline in locally

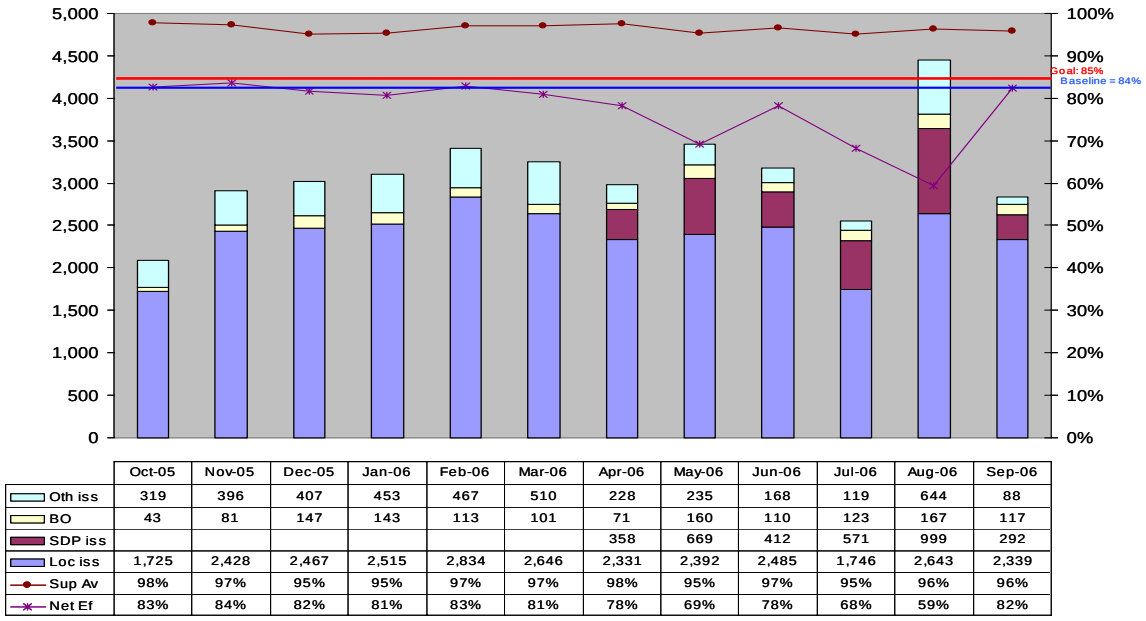
[73] Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

issued parts from 909 to 850 and an increase in BO from 104 to 159 (52.9%). SDP issues also increased substantially, from 233 to 282 (21%). Both of these would be indicators that Ingleside does not have the correct mix of inventory available locally. The net effectiveness six-month average (April thru September) would show Ingleside with an average for the period of 64.33%. What this indicates is that Ingleside is not improving when measured against its blue-line goal of 82%.

Whose problem is this? At first glance, it would seem to be Ingleside's problem. After all, NIMS was implemented over three years ago and supply availability has been in the 90% range all during this period. In Ingleside's defense, it appears that DLA is having issues supplying Ingleside with the right inventory, which is evident by the increase in backorders generated by Ingleside; depicted on the second line of the numerical chart and the tan portion of the bars on the graph. This has significantly affected Ingleside's ability to maintain their Net Ef to the level required by the Navy because every time Ingleside is unable to fill a requisition locally, a backorder is generated and they take a hit against their Net Ef. Also as a result of the local NIMS site not being able to fill a requisition, the next level in the DLA supply chain must fill the requisition. SDP Iss have been increasing the past several months, as depicted on the third line of the numerical chart and the purple portion of the bar graph. This reinforces the results of the second observation, which is ultimately a reflection of having the wrong inventory at Ingleside.

Overall, Ingleside is still 25 percentage points away from achieving the "Goal" of Net Effectiveness required by the Navy. After 3 years of implementation, Net Ef does not meet the specified goal, nor is it headed in the right direction.

2. Naval Air Station Whidbey Island



	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
Oth iss	319	396	407	453	467	510	228	235	168	119	644	88
BO	43	81	147	143	113	101	71	160	110	123	167	117
SDP iss							358	669	412	571	999	292
Loc iss	1,725	2,428	2,467	2,515	2,834	2,646	2,331	2,392	2,485	1,746	2,643	2,339
Sup Av	98%	97%	95%	95%	97%	97%	98%	95%	97%	95%	96%	96%
Net Ef	83%	84%	82%	81%	83%	81%	78%	69%	78%	68%	59%	82%

Table 5.2: NAS Whidbey Island Net Effectiveness74

Whidbey's net effectiveness climbed in September 2006 to 82%, about 3% below its goal of 85%. Whidbey's net effectiveness had been steadily declining from April 2006 when it was 78%, only seven percentage points below the goal, to a low of 59% in August 2006, 26% below the established goal. A close study of the graph and table above suggests that the fault might lie in the inventory mix held locally. This may be seen in the fact that backorders have doubled from 71 in April to 167 in August (135.5%), while the number of locally issued parts declined from 2834 in February to a low of 1746 in July. Just examining the period between April and September, Whidbey's net effectiveness ultimately rose from 78% to 82%, but only after suffering a steady decline to 59% in August. The potential explaining factor would seem to be a substantial

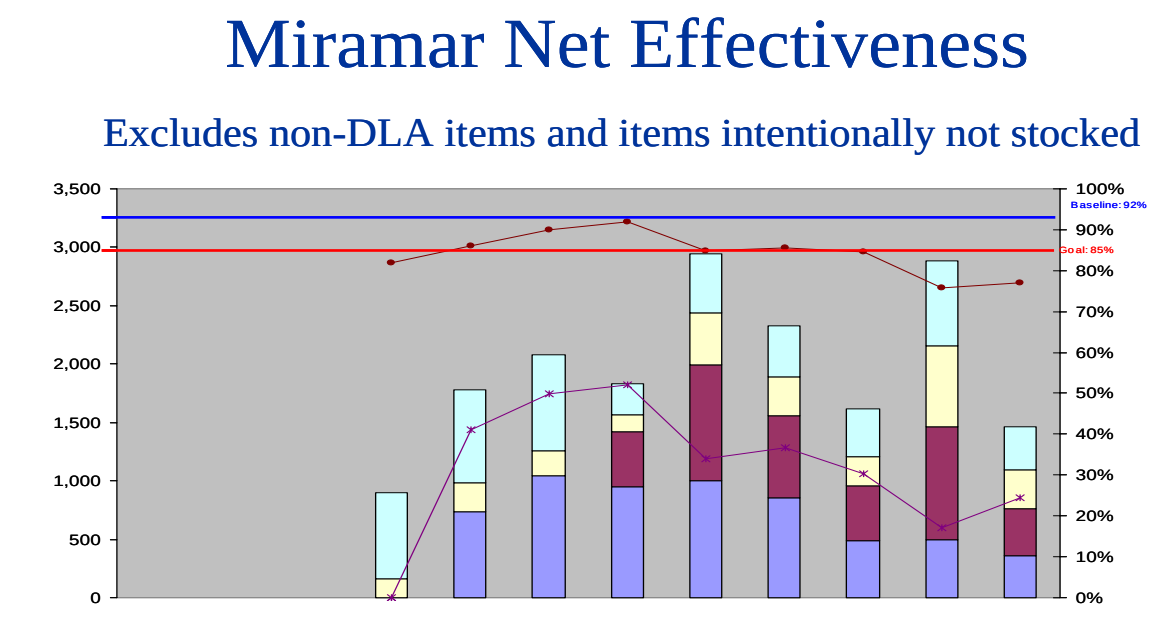
74 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

increase in SDP Iss from 358 to 999 (179.1%). This is the most significant indication that Whidbey and DLA are still having issues finding the correct mix of inventory available locally. The net effectiveness six-month average (April thru September) would show Whidbey with an average for the period of 72.3%. What this indicates is that Whidbey is heading in the right direction, but is still 12.7% away from meeting its red-line goal of 85%.

Whose problem is this? At first glance, it would seem to be Whidbey's problem. After all, supply availability has been in the 95 thru 98% range all during this period. One can infer that there may be communication issues between Whidbey and DLA to find the right inventory mix. It is apparent that DLA is having issues supplying Whidbey with the right inventory, evident by the increase in SDP Iss; depicted on the third line of the numerical chart and the purple portion of the bars on the graph. This has significantly affected Whidbey's ability to maintain their Net Ef to the level required by the Navy because every time Whidbey is unable to fill a requisition locally, a backorder is generated and they take a hit against their Net Ef. Also as a result of the local NIMS site not being able to fill a requisition, the next level in the DLA supply chain must fill the requisition, explaining the increasing SDP Iss rate. This is ultimately a reflection of having the wrong inventory mix at Whidbey.

Overall, Whidbey is only 3 percentage points away from achieving the Navy's Net Effectiveness goal. Despite the past erratic trends, net effectiveness appears to be under control.

3. Marine Corps Air Station Miramar



	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
Oth iss				738	800	818	263	511	433	409	722	373
BO				164	245	218	148	444	337	250	699	336
SDP iss							470	991	703	468	967	399
Loc iss				0	736	1,042	951	1,002	856	489	495	359
Sup Av				82%	86%	90%	92%	85%	86%	85%	76%	77%
Net Ef				0%	41%	50%	52%	34%	37%	30%	17%	24%

Table 5.3: MCAS Miramar Net Effectiveness75

Miramar's net effectiveness has been very erratic. In February, Net Ef was 41%, and fell to 24% in September; 61% away from its goal of 85%. Our interviews suggested some reasons for this decline, including BSM transition challenges and delay in replenishing Miramar's inventory back to the proper level after transitioning back from RIMM. A close study of the graph and table above supports the claim of insufficient inventory mix held locally. This may be seen in the fact that backorders have increased from 164 in January to 699 in August, while the number of locally issued parts declined from 1042 to 359. Just examining the months of August and September, Miramar's net effectiveness is finally starting to increase from 17% to 24%. Nevertheless, what happened before September? The potential explaining factors would seem to be a decline

75 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

in locally issued parts from 1042 to 359 and an increase in BO from 164 to 699 (326.2%). SDP issues also increased substantially, from 470 to 967 in August (105.8% increase). Both of these would be indicators that Miramar does not have the correct mix of inventory available locally. The net effectiveness six-month average (April thru September) would show Miramar with an average for the period of 32.3%. What this indicates is that Miramar is struggling to improve when measured against its red-line goal of 85%.

Whose problem is this? At first glance, it would seem to be Miramar's problem. After all, supply availability has been in the mid 80% range all during this period. In Miramar's defense, they were in the process of transferring their inventory due to the RIMM implementation. Now that NIMS has come online, it appears that DLA is having issues supplying Miramar with the right inventory, which is evident by the increase in SDP Iss; depicted on the third line of the numerical chart and the purple portion of the bars on the graph. This has significantly affected Miramar's ability to maintain their Net Ef to the level required by the Navy because every time Miramar is unable to fill a requisition locally, a backorder is generated and they take a hit against their Net Ef. As a result Miramar not being able to fill a requisition, the next level in the DLA supply chain must fill the requisition, explaining the increasing SDP Iss rate. This is ultimately a reflection of having the wrong or insufficient inventory at Miramar.

Overall, Miramar is 61 percentage points away from achieving the Navy's Net Effectiveness "Goal" of 85%. The current trend depicts Miramar heading in the right direction, especially as they are resourced with the correct inventory.

4. Summary of Site Effectiveness

If DLA is going to be successful with NIMS, it must work with the local NIMS sites and ensure they are stocking them with the right inventory. DLA must demand that the local sites constantly update usage of the most demanded items to ensure they are stocked with the right inventory. If the local NIMS sites properly track usage and report that usage to their inventory control points, there is no reason for the right inventory not to be available for immediate issue.

D. CUSTOMER WAIT TIME (CWT)

Customer Wait Time is the main measure that DLA uses to track the effectiveness of NIMS at each one of its sites.[76] Controlling and reducing CWT is crucial in satisfying the customer's needs, which in this case is the Navy. As we will see, this is huge problem for DLA. Trying to manage and track the problem areas is not only cumbersome, but very time consuming because of its complexity and number of layers within the supply chain. Therefore, we must first discuss the content of each of the graphs that will be used to analyze each site.

The Average Customer Wait Time graph is a good visual measure of how well each site is doing in regards to meeting the needs of the Navy. The graphs are complex and rich in the detail they offer. This is how to read them:

1. The left axis measures the number of Customer Wait Time days since the requisition was generated.
2. The red bar chart bars indicate by month the Customer Wait Time, which includes wholesale delay and local delay times.
3. The straight red lines are measurement lines for the Customer Wait Time (CWT). The Navy "CWT goal" is eight days, and the "CWT baseline" is where the site began its measure.
4. The straight green lines are measurement lines for the Wholesale Delay Time (WDT), using the green WDT dots on the graph. DLA established the "WDT goal" at 25 days, and the "baseline" established at 30 days. [77]
5. The blue dots represent the Local Delay Time (LDT).

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[76] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

[77] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

It is apparent that the Wholesale Delay Time (WDT) has a major impact on the CWT. Therefore, careful monitoring of the WDT by DLA is critical in identifying and minimizing CWT. Another key point to consider is how Average CWT is calculated. Average CWT is a function of the Local Delay Time (LDT) and WDT. However, to find Average CWT, you must know the total weight time for each requisition to average the total CWT, as well as the different components of the supply chain that affect the CWT. It is impossible to calculate the average CWT from simply adding LDT and WDT, and merely dividing by two. Therefore, we must consider the Supply Response Time graph to understand CWT.

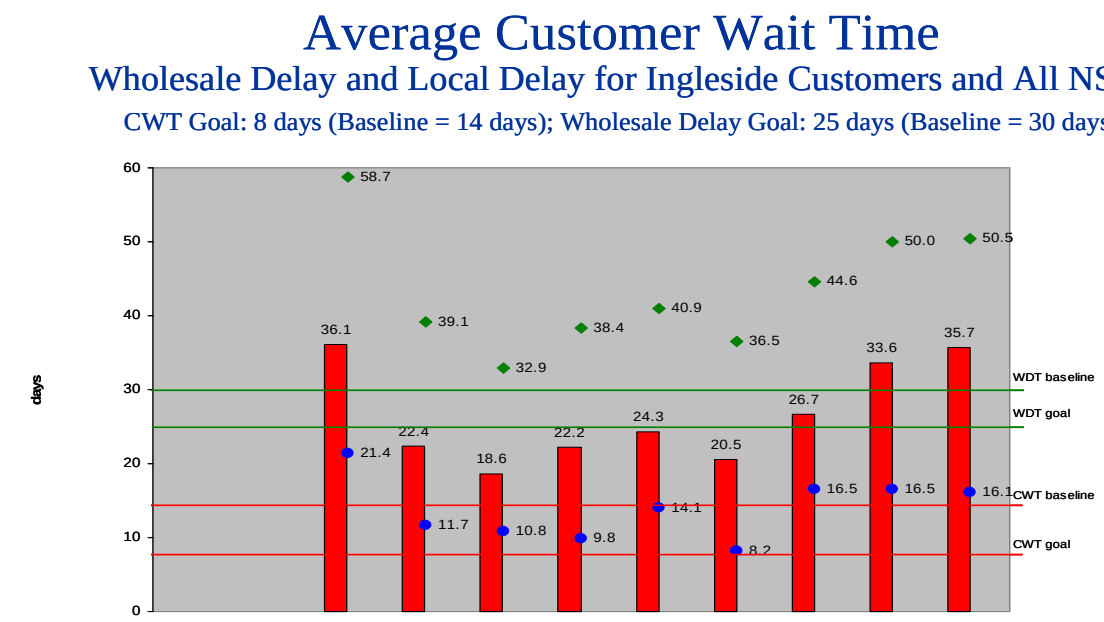
The Supply Response Time graphs will help us understand some of the required processes within requisition processing; and how they affect LDT, WDT, and CWT. There are four main components of requisition processing:[78]

- Requisition Submission Time – the time it takes from submission of a requisition by the service to the NIMS site.
- Inventory Control Point (ICP) Processing Time – the time it takes the material manager of that item to find the item and release it for issue.
- Depot Processing Time – the time it takes for DLA depot to find an item, and issue the item to the customer.
- Transportation/Receipt Take-up Time – time it takes to get the part from its inventory location to the customer.

Therefore, we will look at LDT, WDT, and CWT and the effects that each of the different processes has on CWT.

78 Per site visit at MCAS Miramar and teleconference with DORRA on October 19, 2006

1. Naval Air Station Ingleside



	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
CWT			36.1	22.4	18.6	22.2	24.3	20.5	26.7	33.6	35.7
Local Reqs			1026	952	1717	1240	1604	799	967	511	242
Wholesale Delay			58.7	39.1	32.9	38.4	40.9	36.5	44.6	50.0	50.5
Local Delay			21.4	11.7	10.8	9.8	14.1	8.2	16.5	16.5	16.1
Wholesale Reqs			662	610	936	952	980	614	550	529	323

Table 5.4: NAS Ingleside Average Customer Wait Time79

As we can see in Table 5.4, Ingleside has had a tough time managing their LDT. Since the beginning of 2006, June was the only month that they were even close to reaching the Navy's CWT Goal of eight days. As we discussed in the last section, supply availability was consistently over 90%; indicating the part is within the DLA supply chain. As we can see from the graph, LDT has averaged over 16 days the past several months, twice the Navy's CWT Goal of eight days. This is a reflection of the wrong inventory mix at Ingleside. To make matters even worse, WDT is averaging 50 days, not even close to the CWT Goal. As a matter of fact, WDT is over eight times greater than the CWT Goal. If this is going to be the trend, Ingleside will not meet the Navy's Goal

79 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

unless something drastically changes at the wholesale level. Are there improvements that can be made in the requisition process? In the next section, we will look at the requisition process at Ingleside.

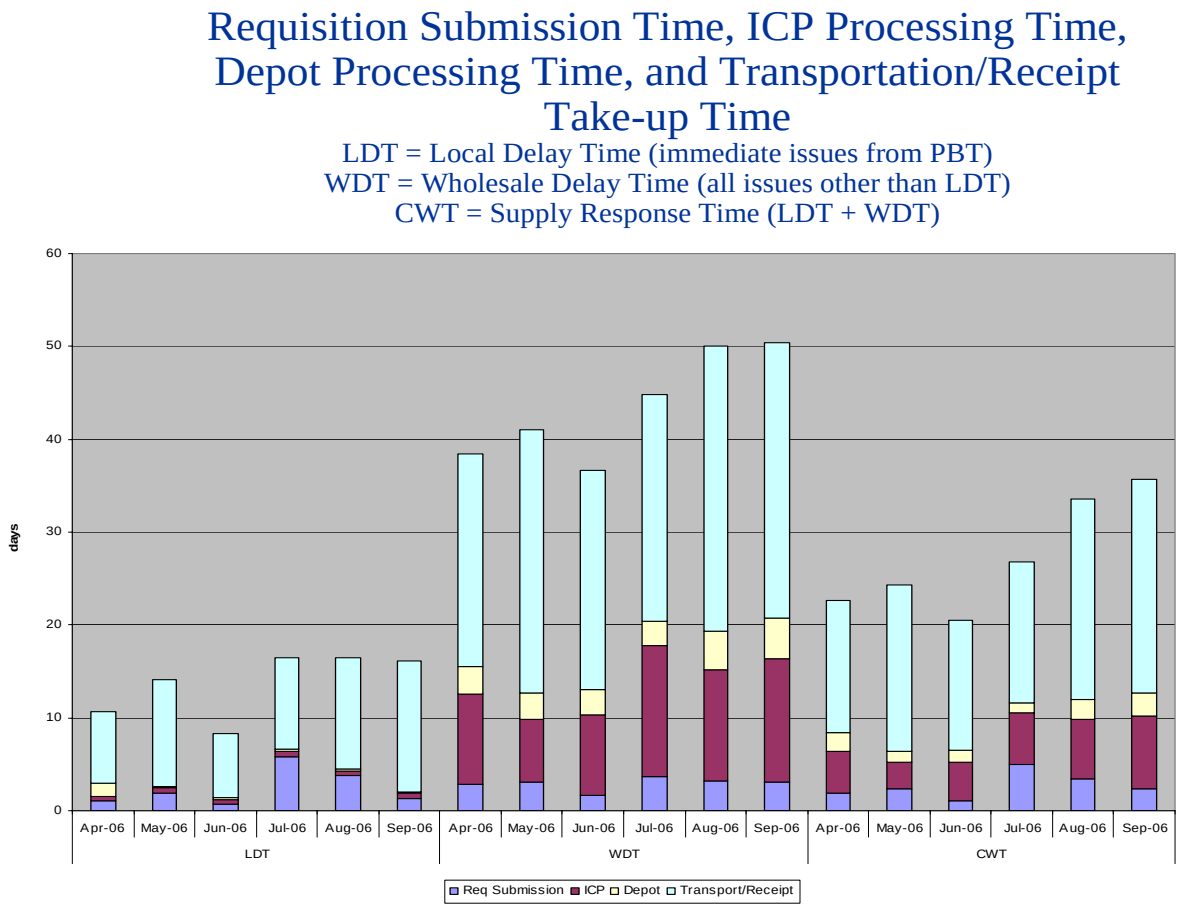


Table 5.5: NAS Ingleside Supply Response Time[80]

From Table 5.5, the following conclusions can be drawn concerning Supply Response Time:

- Local Delay Time (LDT): is only affected by requisition submission and transportation time delays. LDT is averaging fifteen days, with an average

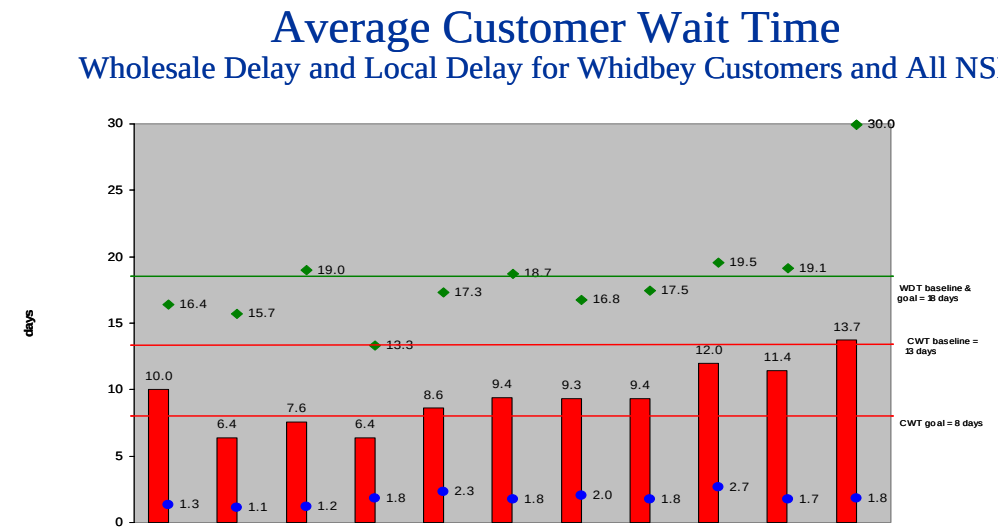
80 : Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

of seven days for transportation. This explains why LDT is so high at Ingleside. There is a transportation/receipt issue that needs to be addressed.

- Wholesale Delay Time (WDT): contains all of the requisition processing factors. We can conclude that once a requisition is backordered from the local NIMS site and sent to the wholesale level, over two weeks are added for transportation/receipt time alone; not to mention the week of ICP delay. If NIMS is going to achieve its goal, it must work out the transportation/receipt and ICP delays within the depot process (WDT).

- Customer Wait Time (CWT): given the enormous transportation/receipt delays within LDT and WDT, it is obvious why CWT is so high at Ingleside.

2. Naval Air Station Whidbey Island



	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
CWT	10.0	6.4	7.6	6.4	8.6	9.4	9.3	9.4	12.0	11.4	13.7
Local Reqs	1066	2630	2636	2776	2798	2642	2666	2748	1941	2875	2516
Wholesale Delay	16.4	15.7	19.0	13.3	17.3	18.7	16.8	17.5	19.5	19.1	30.0
Local Delay	1.3	1.1	1.2	1.8	2.3	1.8	2.0	1.8	2.7	1.7	1.8
Wholesale Reqs	1635	1484	1463	1845	1996	2168	2586	2569	2379	3578	1846

Table 5.6: NAS Whidbey Island Average Customer Wait Time81

81 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

From Table 5.6 we can conclude that Whidbey is much better off than Ingleside. LDT has consistently been well below the required standard set forth by the Navy. This is a reflection of an efficient requisition/receipt process at Whidbey. Having the right inventory at the local site is crucial in NIMS achieving the Navy's CWT Goal, which is further reinforced by the fact that Whidbey processes 10 times as many requisitions and is still well below the CWT Goal at the local level. However, once an item is backordered, meaning Whidbey does not have it in-stock and the order must be sent to the depot level, the same WDT delay scenario occurs. The delays are not as significant, indicating that Whidbey is working with DLA to identify the items that are demanded by their customers. What is happening at the wholesale level that is causing the Average CWT to be so bad? In the next section, we will look at the Supply Response Time and try to determine what is happening at the wholesale level.

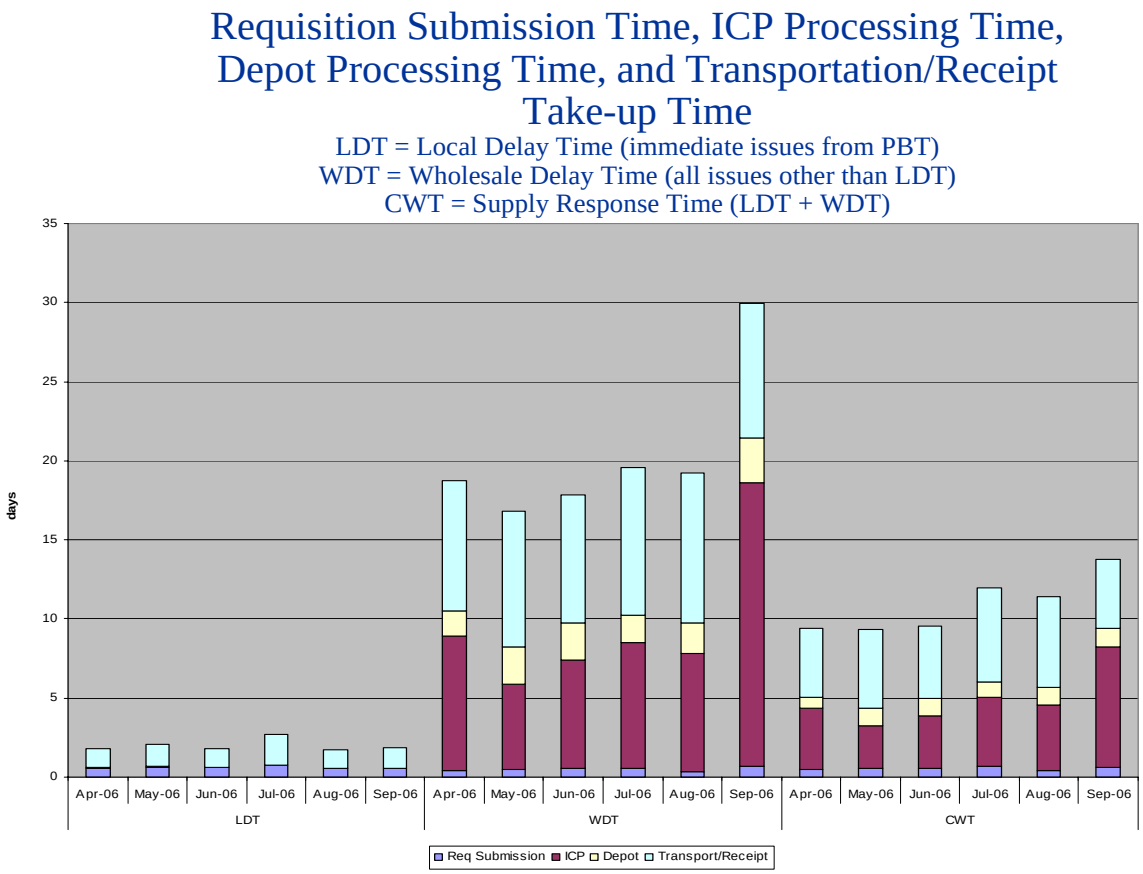


Table 5.7: NAS Whidbey Island Supply Response Time[82]

From Table 5.7, the following conclusions can be drawn concerning Supply Response Time at Whidbey:

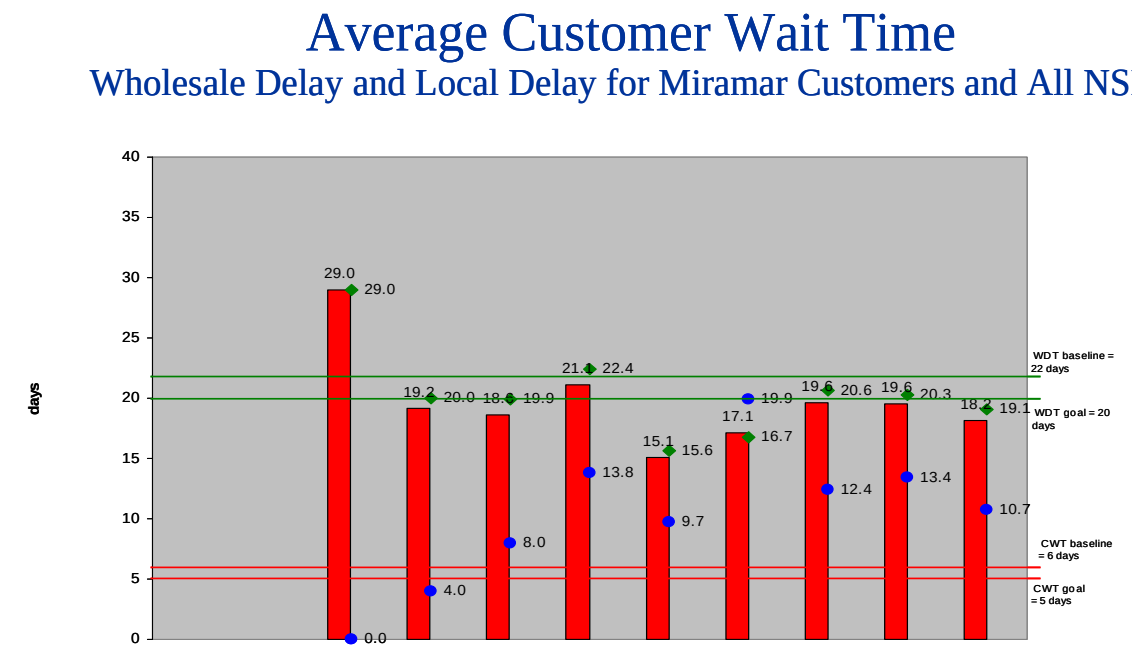
- Local Delay Time (LDT): is only affected by requisition submission and transportation time delays. LDT is averaging only two to three days, which is well within the prescribed standard established by the Navy.
- Wholesale Delay Time (WDT): contains all of the requisition processing factors. As seen at Ingleside, once a requisition is backordered from the local NIMS site and sent to the wholesale level, over two weeks are added for transportation/receipt and ICP processing. If supply availability is so

82 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

high, why is it taking so long for DLA to identify the item and transport it to the NIMS site? There seems to be too many levels of control at the wholesale level.

- Customer Wait Time (CWT): given the enormous transportation/receipt and ICP processing delays within WDT, it is obvious why Average CWT is so high at Whidbey.

3. Marine Corps Air Station Miramar



	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
CWT			29.0	19.2	18.6	21.1	15.1	17.1	19.6	19.6	18.2
Local Reqs			0	408	1232	1459	943	1629	978	937	620
Wholesale Delay			29.0	20.0	19.9	22.4	15.6	16.7	20.6	20.3	19.1
Local Delay			0.0	4.0	8.0	13.8	9.7	19.9	12.4	13.4	10.7
Wholesale Reqs			5442	8170	10356	8375	9923	12061	7290	7784	4822

Table 5.8: MCAS Miramar Average Customer Wait Time[83]

From our initial observation of Table 5.8, it appears as if Miramar is actually improving its situation with regard to Average CWT. As you can see, CWT went from 29 days in January to 18.2 days in September. During the same timeframe, LDT actually doubled. As discussed in the previous section, Miramar has been trying to recapture their

[83] Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

inventory after converting back from RIMMs. Therefore, as Miramar tries to find the right inventory mix, inherent delays will continue to plague their numbers. So what is happening with Supply Response Time to cause their numbers to stagnate? In the next section, we will look at the wholesale level and try to pinpoint the problem areas.

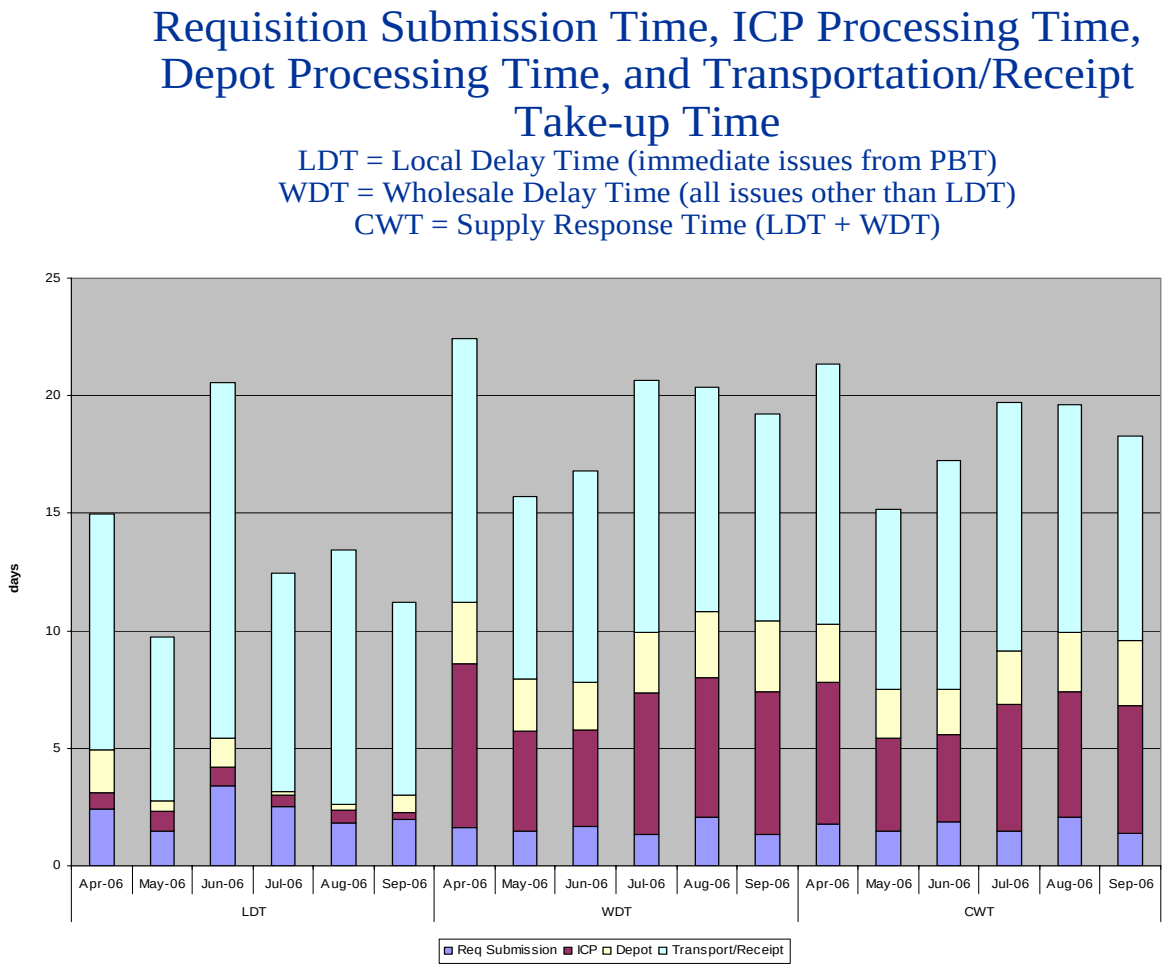


Table 5.9: MCAS Miramar Supply Response Time[84]

From Table 5.9, the following conclusions can be drawn concerning Supply Response Time:

- Local Delay Time (LDT): is averaging about two weeks, which is twice as high as the Navy's Goal. Requisition processing procedures are the same as the other sites, but it is still taking twice as long at Miramar. One of the

[84] Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

main conclusions that can be drawn from this graph is that Miramar's CWT is also suffering from transportation/receipt delays; which explains the high LDT numbers.

- Wholesale Delay Time (WDT): once a requisition is backordered from Miramar and sent to the wholesale level, it is averaging ten to fourteen days for transportation/receipt alone; not to mention another week for ICP processing. If supply availability is so high, why is it taking so long for DLA to identify the item and transport it to the NIMS site? There seem to be too many levels of control at the wholesale level, which we identified in the Whidbey analysis.

- Customer Wait Time (CWT): given the enormous transportation and ICP processing delays within WDT, it is obvious why Average CWT is so high at Miramar. This situation is actually worse for Miramar than for the other sites.

4. Customer Wait Time Summary

The key strategy to solve Customer Wait Time problems is to position the right inventory closest to the customer, while providing the best support and optimizing transportation costs. If NIMS is going to meet the CWT Goal as established by the Navy, it must address the delays at the wholesale level. Are the levels of control too cumbersome at the wholesale level? Can the process be streamlined? These are questions that must be addressed and further analyzed.

E. BACKORDER RATE

Backorders are another major indicator to DLA that an inventory problem exists at the local NIMS site. [85] Regardless if the item is within the DLA system or not, if a requisition has to be passed to the next level of the supply chain, a backorder will be generated and tracked. First Pass CWT is defined as the time it takes for an item to be

[85] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

delivered to the customer if it is available at the local NIMS site.[86] Therefore, comparing the Average Backorder and First Pass CWT is a good way to measure the effectiveness of inventory management. DLA has allowed each of the NIMS sites to influence the levels of inventory required to meet the needs of the customer. Therefore, if DLA and the local NIMS site are communicating, inventory levels should be consistent with supply availability. Local inventory levels (NIMS sites) will never mirror supply availability (DLA 95%) due to cost constraints. Imagine the cost of having that inventory at the 95% level. That is precisely why DLA is trying to minimize by consolidating inventories. Therefore, we will analyze two graphs that will help us see what is actually occurring at each site.

The Average Backorder and First Pass CWT graph depicts the CWT for a First Pass immediate issue requisition, as depicted by the bar graph.[87] The graph is complex and rich in the detail it offers. This is how to read it:

1. The left axis measures the average number of Backorder and First Pass days for each requisition, as they relate to CWT.
2. The blue bar chart bars indicate by month the Average First Pass CWT.
3. The green dots on the graph depict the Average Backorder CWT. They portray the CWT for those items that are sent above the local NIMS site.

The second graph, Number of Open Backorders > 120 Days, represents the number of backorders that are delayed more than 120 days. This has been designated as a significant problem by DLA, hence the tracking.[88] Therefore, we can compare the graphs at each of the sites and determine if DLA is achieving one of its goals; tailoring inventory to meet each service's requirements. If DLA is properly managing its inventory, the backorder CWT should be decreasing.

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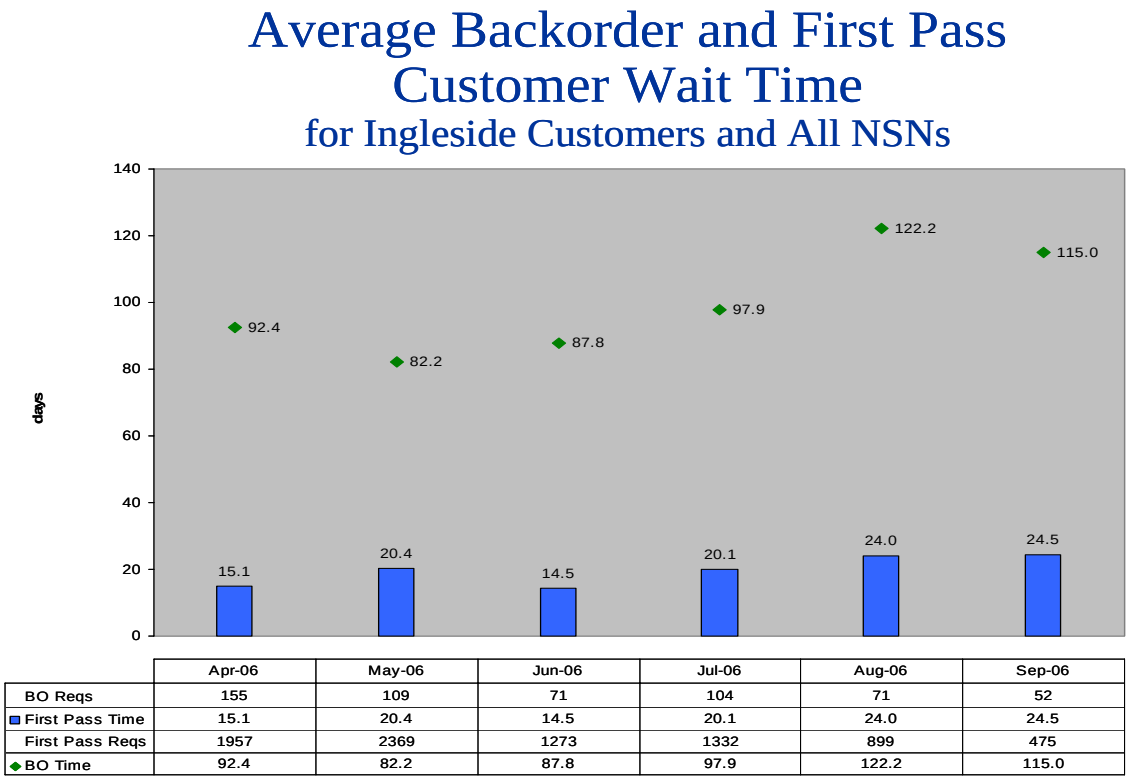
[86] Per site visit at MCAS Miramar and teleconference with DORRA on October 19, 2006

[87] Per site visit at MCAS Miramar and teleconference with DORRA on October 19 2006

[88] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

1. Naval Air Station Ingleside



	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
BO Reqs	155	109	71	104	71	52
First Pass Time	15.1	20.4	14.5	20.1	24.0	24.5
First Pass Reqs	1957	2369	1273	1332	899	475
BO Time	92.4	82.2	87.8	97.9	122.2	115.0

Table 5.10: NAS Ingleside Average Backorder CWT[89]

As depicted in Table 5.10, the First Pass CWT is actually getting worse. This was evident as we looked at Net Effectiveness and the Average CWT, which were both far from reaching their goals. In their defense, the number of backorders is actually decreasing, as shown in the first line of the numerical chart. The Average Backorder CWT has been steadily increasing since April, which indicates a significant problem. As discussed in the previous sections, the wholesale level is having serious transportation/receipt issues.

89 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

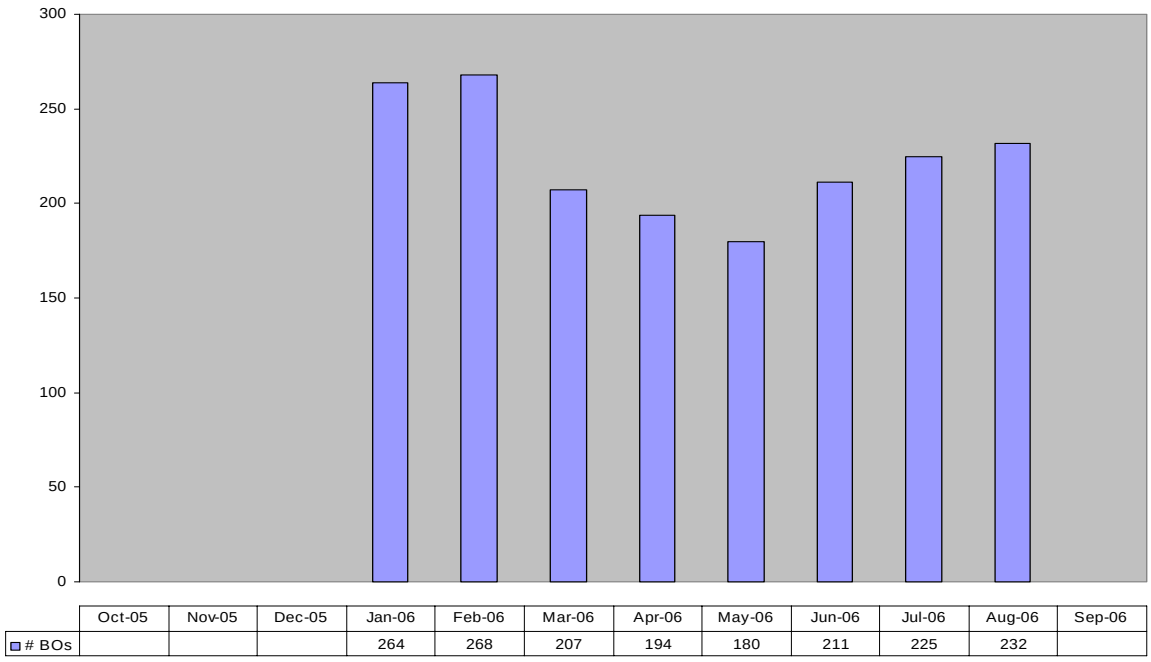


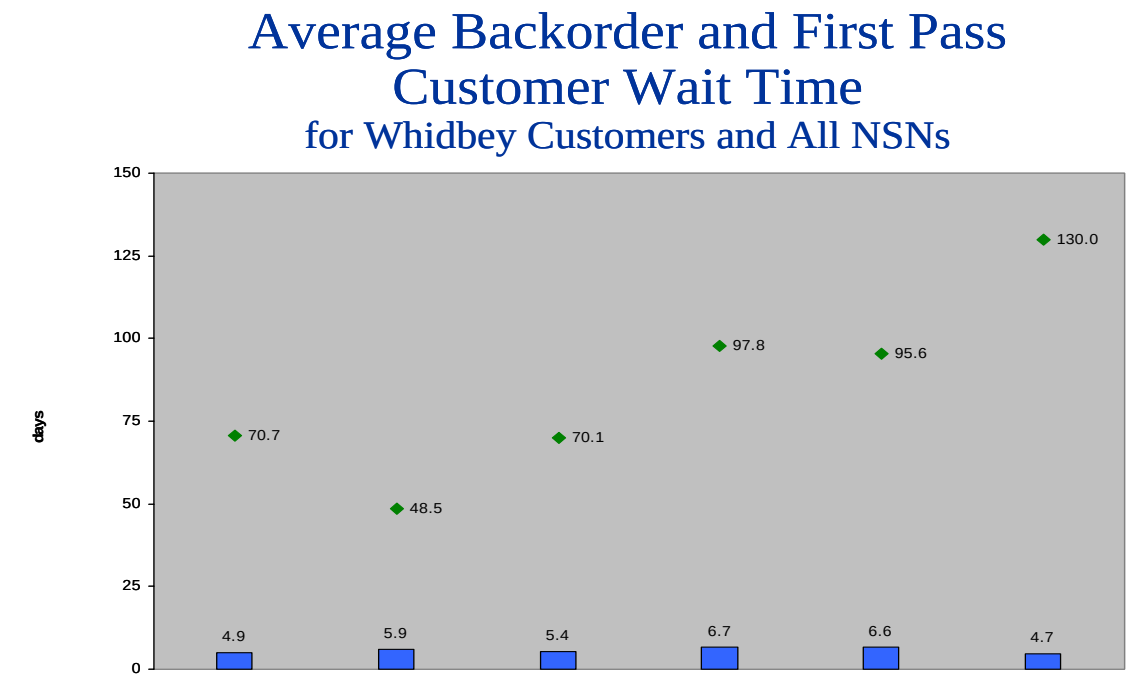
Table 5.11: NAS Ingleside Number of Backorders >120 Days90

In Table 5.11, we can see that the number of backorders is still lower than our starting point of January 2006. The increasing trend that is depicted on the graph could be attributed to having to renegotiate contracts with new manufacturers, as well as a high demand for priority items. DLA's goal is to have all backorder delays below 120 days.[91] As resources become even scarcer and more expensive, this problem will only escalate if it is not managed properly. Are we seeing the same scenario at the other sites? In the next section, we will look at Whidbey and see if the same situation exists.

90 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

91 Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

2. Naval Air Station Whidbey Island



	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
BO Reqs	274	317	261	206	324	275
First Pass Time	4.9	5.9	5.4	6.7	6.6	4.7
First Pass Reqs	4482	4826	4941	4014	6010	3967
BO Time	70.7	48.5	70.1	97.8	95.6	130.0

Table 5.12: NAS Whidbey Island Average Backorder CWT92

In Table 5.12, Whidbey's First Pass performance, as depicted by the bar graph, is consistent with their Net Effectiveness performance that we saw in the previous sections. The green dots on the graph, which depict the Average Backorder CWT, tell the same story as at Ingleside. The inherent delays at the depot level keep surfacing, regardless of the angle. NIMS allows Whidbey to perform at the CWT level set forth by the Navy, especially given the amount of First Pass requisitions that they fill, depicted by the third line of the numerical graph. What is causing the increasing delays at the wholesale level?

92 Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

Do the backorders still point to the transportation/receipt issues? In the next section, we will look at the number of backorders greater than 120 days at Whidbey.

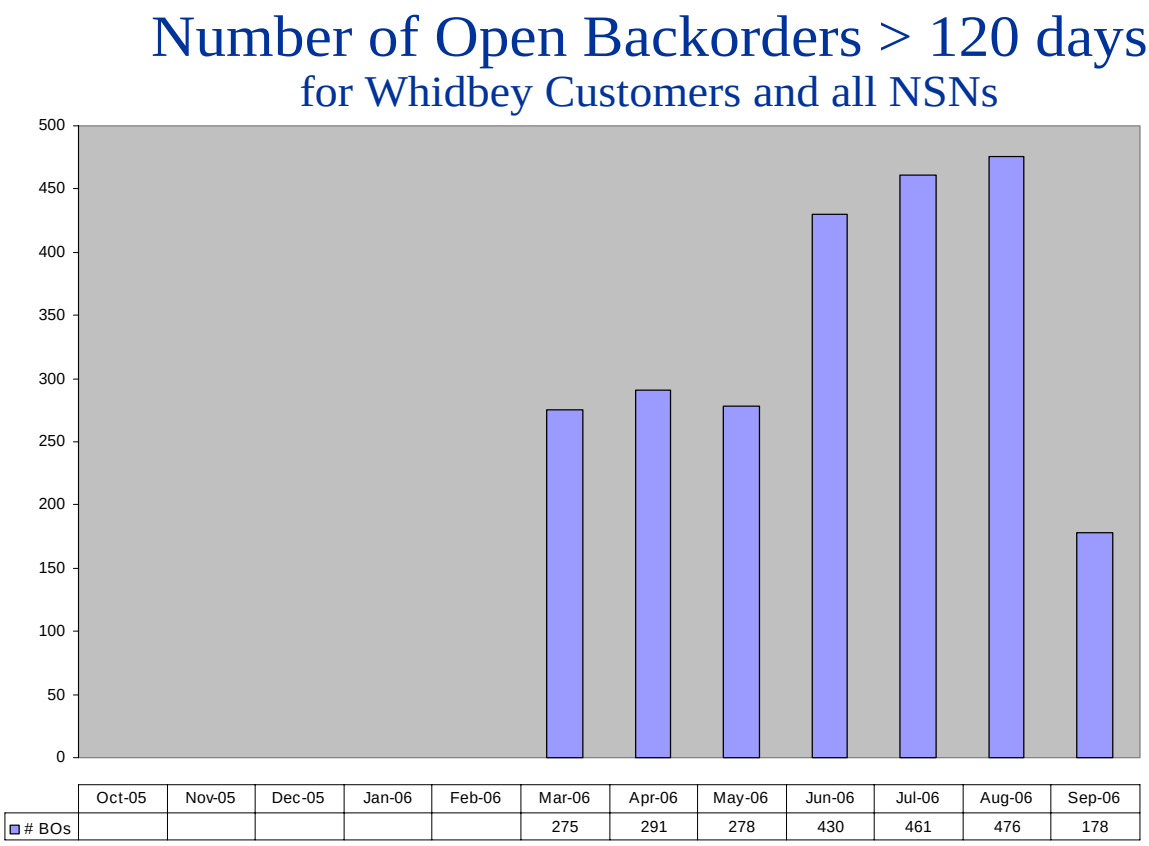
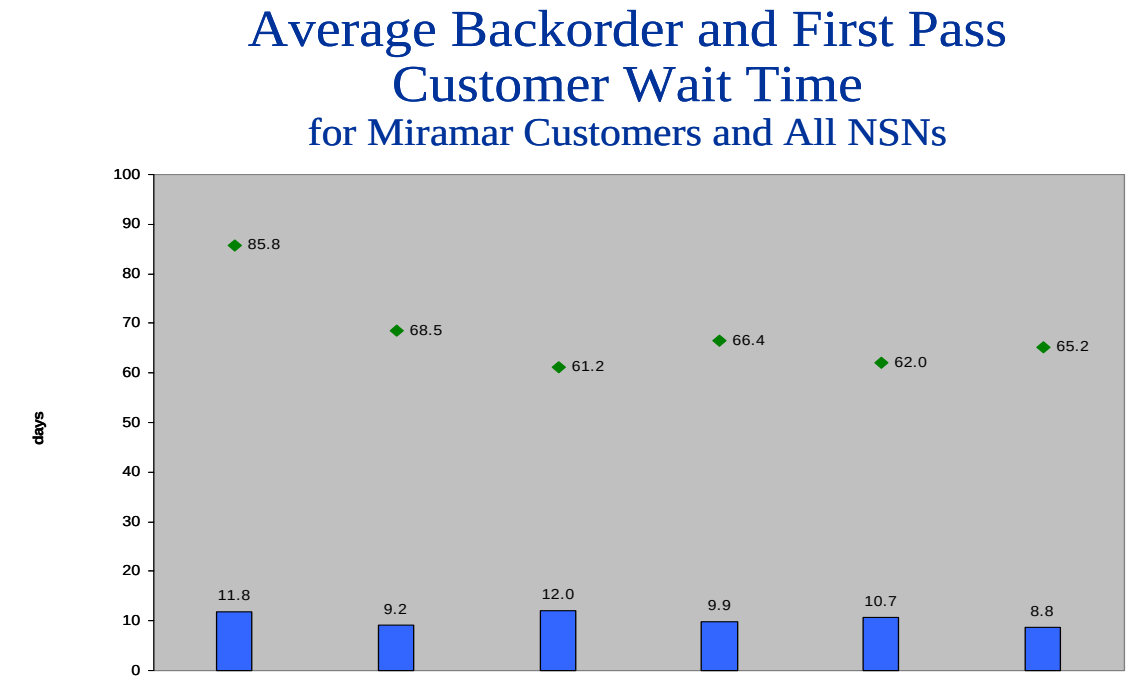


Table 5.13: NAS Whidbey Island Number of Backorders >120 Days93

Table 5.13 further reinforces the success of NIMS at Whidbey. The number of backorders greater than 120 days has significantly decreased the past several months. This is a result of successful inventory levels at the local site, which means less backorders sent to the wholesale level. There is still a problem with transportation/receipt at the wholesale level. If the local NIMS site can minimize the number of backorders, the wholesale level can focus its resources on correcting its transportation/receipt and ICP delays.

3. Marine Corp Air Station Miramar



	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
BO Reqs	946	829	1038	876	949	651
First Pass Time	11.8	9.2	12.0	9.9	10.7	8.8
First Pass Reqs	8489	9693	12060	6628	7165	4364
BO Time	85.8	68.5	61.2	66.4	62.0	65.2

Table 5.14: MCAS Miramar Average Backorder CWT[94]

Table 5.14 is also consistent with the observations in the previous sections. Given Miramar's implementation problems, they are improving their First Pass CWT, as depicted by the bar graph. Additionally, the green dots are also consistent with their efforts to find the right inventory levels, given they are being replenished after relinquishing almost their entire inventory to the RIMM process. Miramar is working hard, as depicted by the number of requisitions they process and the decreasing

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[93] Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

[94] Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

backorders. Miramar has a bad backorder history[95]. In the next section, we will look at Miramar's backorder history and try to determine if the trend is positive.

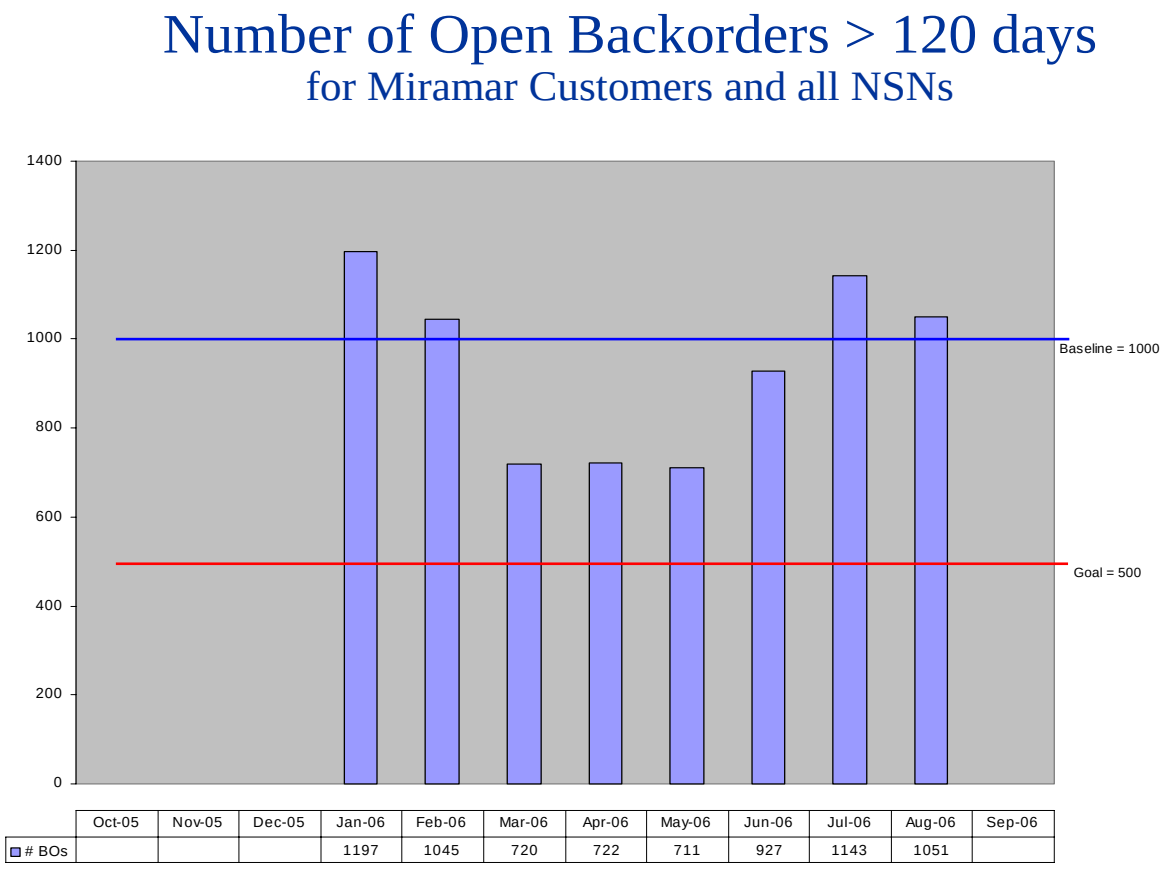

Table 5.15: MCAS Miramar Number of Backorders >120 Days[96]

Table 5.15 is a bit different from the other two "Backorders greater than 120 days" graphs that we have looked at. First, Miramar has at least twice the number of backorders, as well as five to six times the number of backorders greater than 120 days, than the other sites. Therefore, Miramar and DLA have decided to set a goal, depicted by the red horizontal line, specifically aimed at reducing the number of backorders. The backorder issue at Miramar is significantly larger than the other sites, but at least the

[95] Per site visit at MCAS Miramar and teleconference with Randy Wendell of the DLA Operations Research and Resource Analysis (DORRA) center on October 19, 2006

[96] Source: DLA Operations Research and Resource Analysis (DORRA) September 2006

trend is finally headed in the right direction. As Miramar defines its inventory requirements, the number of backorders will continue to decrease.

4. Backorder Summary

Overall, NIMS appears to be improving in the area of backorders. As DLA and the NIMS sites work to define inventory levels, the Backorder and First Pass CWT will only continue to improve. However, the same delays will continue to plague the wholesale level until some real solutions aimed at correcting transportation/receipt and ICP processing are implemented. Additionally, as resources become even scarcer, the problem of delays at the wholesale level will only get worse. Alternatives must be identified earlier in the process, and active participation with the customer's requirements must be addressed.

This chapter provided an analysis of the effectiveness of NIMS in achieving its goals at the three Navy test sites: Ingleside, Whidbey, and Miramar. We looked at the implementation challenges at each of the NIMS sites, the definitions used within the metrics provided by the DLA Office of Operations Research and Resource Analysis (DORRA), and analyzed the metrics in regards to site effectiveness, customer wait time, and back order rate. The next chapter will provide observations and recommendations of our analysis of the preliminary metrics data from the test sites. It will also provide suggestions for future research.

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VI. OBSERVATIONS AND RECOMMENDATIONS

A. SUMMARY

> Supply chain management is the operation of continuous, unbroken, comprehensive, and all-inclusive logistics process, from initial customer order for material or services to the ultimate satisfaction of the customer's requirement.[97]

According to Defense Logistics Agency (DLA), the National Inventory Management Strategy (NIMS) initiative seeks to manage consumable items from the point of acquisition to the point of consumption for the services. This would allow DLA to provide:[98]

- Total Asset Visibility
- Reduction in Inventory
- Reduction in Customer Wait Time

Although DLA continues to make progress in the implementation of NIMS, the wholesale delays, transportation/receipt, and the high-level of backorders have led us to conclude that NIMS has not been effective in improving supply chain management within the Navy and DLA. The following observations will support our conclusions.

B. OBSERVATIONS AND RECOMMENDATIONS

1. Long Term Strategy

There is no DoD wide common plan to implement NIMS. DoD continues to rely on individual efforts of DLA and the services to achieve the goal of implementing NIMS. Until DoD develops a common strategy that mandates the services to implement NIMS, DLA will not be successful in the goal of achieving its single national inventory strategy.

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97 GAO Report, GAO-06-983T, "DOD'S HIGH-RISK AREAS: Challenges Remain in Supply Chain Management", July 2006

98 GAO Report, GAO-03-709, "Defense Inventory: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts", August 2003

2. Delays in the Implementation of NIMS

Since May 2003, the NIMS initiative has been in the testing period (Phase III) and has a DoD wide implementation scheduled of 2009.[99] As of September 2006, DLA continues to make progress with the implementation of NIMS, however, it will be several years before NIMS can be fully implemented DoD wide. The delays in meeting scheduled milestones can be attributed to the lack of "total buy-in" from the services; a Program Budget Decision 422 directed the services to implement a plan to eliminate duplicative retail services by transferring ownership of inventories to DLA. The services have not provided DLA with the necessary resources to ensure DoD wide implementation.

3. Total Asset Visibility

One of NIMS main objectives is to provide total asset visibility; however, there are two issues hindering the achievement of this objective. First, there is no common strategy guiding the services on information systems integration. As of May 2004, DoD operated 210 inventory related information systems that were not integrated.[100] Second, the integration and interoperability of information systems continues to be a challenge. An example of this was the implementation at Whidbey Island; the inventory information system was incompatible with DLA's Standard Automated Material Management System and Business Systems Modernization.

4. Inventory Levels

The inventory held locally has a major impact on Net Effectiveness. If DLA is going to measure its performance based on net effectiveness, it must find ways to improve the inventory mix at each site. From our analysis in Chapter 5, net effectiveness was lacking at all sites because they were unable to fill the requisition locally, thereby generating a backorder. At all sites, the backorder rate was increasing. This is a result of the wrong inventory mix at each site.

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[99] GAO Report, GAO-03-709, "Defense Inventory: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts", August 2003

[100] GAO Report, GAO-05-15: "Defense Inventory: Improvements Needed in DOD's Implementation of its Long-Term Strategy for Total Asset Visibility of its Inventory", December 2004

The recommendation for this problem would be further analysis on the fill rates of high demand items, and how inventory levels are established. Specifically, the Reorder Points (ROP) need to be redefined and demand rates tracked more efficiently. With the number of legacy information systems in-place, there may be inconsistencies with the information that is actually being tracked. One sole information system must be used to track ROP and demand rates, especially once DLA starts implementing NIMS across the services.

5. Customer Wait Time (CWT)

As described in previous chapters, if NIMS is going to be successful, DLA must effectively and efficiently deliver the right part in a timely manner to its customers to support readiness. From our analysis in Chapter 5, Customer Wait Time at all three sites was above the Navy's established goal of 8 days, with Whidbey being the closest at 13.7 days. From the Average CWT and Supply Response Time graphs, it is apparent that transportation/receipt and Intermediate Control Point delays at the wholesale level really hinder CWT. In regard to the transportation/receipt issue, it is hard to determine if there is actually a transportation issue or if there is a problem with the customer acknowledging receipt of the part in the supply system. The ICP delays are just as difficult to pinpoint. Once an item is backordered and enters the wholesale level, the ICP should be able to immediately release the item for issue. However, based on the metrics, this is averaging seven to ten days.

Our recommendation for correcting the transportation/receipt and ICP delays is for DLA to apply best practices to its logistics and transportation operations. By doing this, it will follow the Transportation Vision for the 21st century to become a world-class, globally capable, inter-modal transportation system that is responsive, efficient, fully integrated, and in partnership with industry - - ensuring readiness, sustainability, and quality of life.[101] Another recommendation would be to split up transportation and receipt timeframes. This would enable DLA to determine if there are actually transportation issues or the problem rests in the proper processing of the requisition.

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101 Depart of Defense Office of Executive Secretary www.dod.mil/execsec/adr97/chap15.html (Last Accessed November 2006)

6. Metrics Data

The performance metrics used by DORRA are too cumbersome. The graphs and tables contain too many variables that can be easily misinterpreted. For example, one of the sites was unable to determine their status by merely reading the metrics. They assumed that they were underperforming or not properly supporting their customers. After careful review of their graphs and discussions with DORRA, they were actually performing to the level expected by DLA.

We recommend that DORRA minimize that amount of information they put on each of the metrics, or send a workable version to the sites so they can gauge their strengths and weaknesses. It is obvious that these metrics are generated for a higher level brief. The sites need to be able to decipher the information that DORRA is gathering and presenting to others.

C. SUGGESTIONS FOR FUTURE RESEARCH

This research concluded that NIMS is not effective based on the examination of preliminary data of site effectiveness, customer wait time, and backorder rate from three Navy test sites. Nevertheless, these measures do not necessarily reflect the performance of the initiative; it simply demonstrates that NIMS is not effective at these test sites. As NIMS continue to be implemented, DoD wide, future research should examine cost metrics to analyze gained efficiencies and cost savings in supply chain management.

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